Kwon, B.
10/731626

FILE 'REGISTRY' ENTERED AT 15:11:31 ON 29 NOV 2005
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DICTIONARY FILE UPDATES: 28 NOV 2005 HIGHEST RN 868827-82-1

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* *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
* *
****

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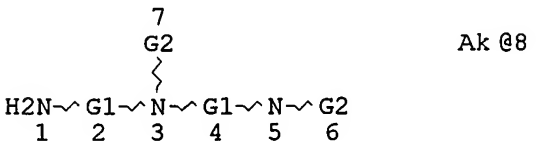
L1 STR



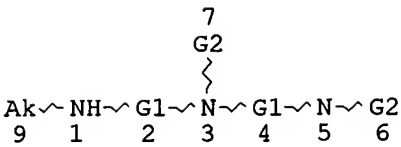
$R_1 \neq R_2 = H$

REP G1=(2-6) C
VAR G2=H/8
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT IS LOC AT 8
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE
L2 SCR 1838 ← Screen for >= 1 ring system present
L3 STR

Searcher : Shears 571-272-2528

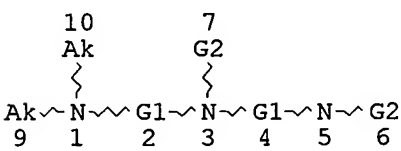


R1 = H
R2 = Ak

REP G1=(2-6) C
VAR G2=H/8
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT IS LOC AT 8
GGCAT IS LOC AT 9
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE
L4 STR



R1 ≠ R2 = Ak

REP G1=(2-6) C
VAR G2=H/8
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT IS LOC AT 8
GGCAT IS LOC AT 9
GGCAT IS LOC AT 10
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE
L5 143361 SEA FILE=REGISTRY SSS FUL (L1 OR L3 OR L4) NOT L2 ← No ring syst. present
L6 130595 SEA FILE=REGISTRY ABB=ON PLU=ON L5 AND 1/NC ← One (1) Component compd
L7 2073 SEA FILE=REGISTRY ABB=ON PLU=ON L6 AND O=0 ← Zero (ø) Os present

FILE 'CAPLUS' ENTERED AT 15:11:39 ON 29 NOV 2005

FILE COVERS 1907 - 29 Nov 2005 VOL 143 ISS 23
FILE LAST UPDATED: 28 Nov 2005 (20051128/ED)

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L8 31426 SEA ABB=ON PLU=ON L7
L9 63 SEA ABB=ON PLU=ON L8(L)((LIVER OR HEPATIC)(5A)(GENERAT? OR REGENERAT?) OR (PANCREATIT? OR (PANCREAS OR PANCREAT?)(3A)(DISEAS? OR DISORDER))(5A)(TREAT? OR THERAP? OR PREVENT?))
L10 59 SEA ABB=ON PLU=ON L9 NOT (PY=>2002 OR PD=>20021209) ← Restrict to only citations dated prior to 12-09-02

E1 THROUGH E2 ASSIGNED

L10 ANSWER 1 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:373844 CAPLUS
DOCUMENT NUMBER: 135:194229
TITLE: Inhibition by interferon α-2b of rat liver regeneration: effect on ornithine decarboxylase and total protein synthesis
AUTHOR(S): Favre, C.; Carnovale, C. E.; Monti, J. A.; Carrillo, M. C.
CORPORATE SOURCE: Institute of Experimental Physiology, Faculty of Biochemical and Pharmaceutical Sciences, National Council of Scientific and Technical Research, National University of Rosario, Rosario, 2000, Argent.
SOURCE: Biochemical Pharmacology (2001), 61(12), 1587-1593
CODEN: BCPCA6; ISSN: 0006-2952
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Polyamines are key factors in macromol. synthesis during liver regeneration. It has been postulated that interferon-α (IFNα) decreases putrescine levels in regenerating liver by inhibiting ornithine decarboxylase (ODC) activity, the main enzyme in polyamine biosynthesis. In the present study, we analyzed the effects of a pharmacol. dose of IFNα on polyamine and ODC levels during the regenerative process following partial hepatectomy in rats. Synthesis of ODC by isolated hepatocytes from IFN-treated rats with regenerating livers was also assessed. Furthermore, we investigated the effect of IFNα-2b on DNA and total protein synthesis in 24-h regenerating livers. No effect on DNA synthesis was observed at the dose of IFNα-2b used, but total protein synthesis decreased significantly in IFNα-2b-treated rats undergoing liver regeneration (7.0 ± 2.0 and 12.1 ± 1.7% · min-1 in hepatectomized rats treated with IFNα-2b and saline, resp.). ODC levels were also reduced significantly (by 50%) in hepatectomized rats treated with IFNα-2b vs. saline. In parallel with the ODC decrease, the concns. of putrescine and spermidine (63 ± 25 vs 101 ± 15 nmol/g liver and 1.08 ± 0.35 vs 2.14 ± 0.22 μmol/g liver, resp., in IFNα-2b- and saline-treated hepatectomized rats) showed similar, significant diminutions. Moreover, the

incorporation of [35S]methionine into ODC was decreased dramatically in isolated hepatocytes from IFNα-2b-treated hepatectomized rats 12 h after surgery. In conclusion, the protein synthesis rate in regenerating liver was impaired by therapeutic doses of IFNα-2b. In addition, the results presented in this study suggest that IFNα-2b neg. regulates ODC synthesis, causing a reduction in polyamine levels during liver regeneration.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(inhibition by interferon α-2b of rat **liver regeneration** affects ornithine decarboxylase and total protein synthesis)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 2 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:40240 CAPLUS
DOCUMENT NUMBER: 132:277503
TITLE: Human erythrocyte polyamine levels after portal vein embolization
AUTHOR(S): Tsukamoto, Tadashi; Kinoshita, Hiroaki; Hirohashi, Kazuhiro; Kubo, Shoji; Tanaka, Hiromu; Otani, Shuzo; Tsukamoto, Tadashi
CORPORATE SOURCE: Second Department of Surgery, Osaka City University Medical School, Osaka, Japan
SOURCE: Hepato-Gastroenterology (1999), 46(30), 3178-3183
CODEN: HEGAD4; ISSN: 0172-6390
PUBLISHER: H.G.E. Update Medical Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English

AB BACKGROUND/AIMS: Polyamine levels in erythrocytes are related to liver regeneration and could be used as an index of liver regeneration after partial hepatectomy. We investigated liver regeneration after portal vein embolization according to the changes of erythrocyte polyamine levels. METHODOl.: Levels of polyamines (putrescine, spermidine, and spermine) in erythrocytes were assayed by high-pressure liquid chromatog. for 13 patients with hepatocellular carcinoma after portal vein embolization and 16 patients (8 from group reported earlier) after right bisegmentectomy of the liver for hepatocellular carcinoma. In the first group, embolization preceded surgery by 3 wk. RESULTS: The mean total polyamine level in erythrocytes and the levels of spermidine and spermine were significantly higher at day 7 after

embolization, decreasing later. Spermidine and spermine increased by day 7 after partial hepatectomy, decreasing later. Their mean increase was smaller and more gradual when embolization was done before resection than without embolization. CONCLUSIONS: Embolization causes regeneration of the non-embolized portion of the liver, and embolization before liver resection allows regenerative activities of the liver remaining after resection to be lower than without the embolization.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
(polyamine levels in human erythrocytes after portal vein embolization as index of **liver regeneration** after partial hepatectomy)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 3 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:733691 CAPLUS
DOCUMENT NUMBER: 132:118658
TITLE: Effects of acute ethanol exposure on polyamine and gamma-aminobutyric acid metabolism in the regenerating liver
AUTHOR(S): Lou, G.; Zhang, M.; Minuk, G. Y.
CORPORATE SOURCE: Department of Medicine and Pharmacology, Liver Diseases Unit, Health Sciences Centre, University of Manitoba, Winnipeg, MB, Can.
SOURCE: Alcohol (New York) (1999), 19(3), 219-227
CODEN: ALCOEX; ISSN: 0741-8329
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Recently, it was suggested that EtOH-induced inhibition of liver regeneration results from decreases in hepatic putrescine levels and/or increases in hepatic γ-aminobutyric acid (GABA)ergic activity. Because putrescine can be metabolized by diamine (DAO) and monoamine (MAO) oxidases to GABA, we documented the effects of acute EtOH exposure on hepatic MAO or DAO activity following partial hepatectomy (PHx) in rats. We also documented the effects of EtOH on GABA transaminase (GABA-T), the enzyme responsible for GABA metabolism in the liver, and tissue putrescine and GABA levels. Adult, male Sprague-Dawley rats (200-250 g) were treated with either EtOH (3 g/kg)

or equal vols. of saline by gastric gavage 1 h prior to a 70% PHx or sham surgery. Rats were then sacrificed (n = 5-7/group) at various times (0-72 h) post-PHx. Enzymic activity and putrescine/GABA levels were determined by standard isotopic techniques and HPLC, resp. Hepatic DAO activities in EtOH-treated rats were transiently higher than in saline-treated controls (30% increases at 6 h). Hepatic MAO and GABA-T activities in acute EtOH-treated rats were essentially identical to saline-treated controls. Although hepatic putrescine levels were similar in EtOH- and saline-treated rats, hepatic GABA levels were approx. 3 times higher in EtOH-treated rats at 12 and 24 h post-PHx. In conclusion, the results of this study indicate that acute EtOH exposure has a limited effect on the enzymic conversion of putrescine to GABA following partial hepatectomy in the liver. The results also indicate that increased GABAergic inhibition rather than decreased putrescine stimulation is more likely to play a role in EtOH-induced inhibition of hepatic regeneration.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(EtOH effect on polyamines and **liver regeneration**
)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 4 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1997:630322 CAPLUS
DOCUMENT NUMBER: 127:306133
TITLE: The role of polyamines in liver regeneration after hepatectomy with ischemic injury
AUTHOR(S): Ogiso, Seiji; Matsumoto, Takatoshi; Nimura, Yuji
CORPORATE SOURCE: First Dep. Surgery, Sch. Med., Nagoya Univ., Nagoya, 466, Japan
SOURCE: Surgery Today (1997), 27(9), 833-839
CODEN: SUTOE5; ISSN: 0941-1291
PUBLISHER: Springer
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A total of 175 rats were divided into: (1) a sham operation group, in which the liver was slightly mobilized after laparotomy; (2) a control group in which 68% of the liver was resected without the blockade of blood flow; (3) an ischemia + hepatectomy group, in which the vessels entering the right and caudate lobes were clamped for 30 min, and the nonischemic lobes were resected; (4) a DFMO (α-

difluoromethylornithine) + ischemia + hepatectomy group, in which the same procedure as for the ischemia + hepatectomy group was performed, but the animals received DFMO; (5) a DFMO + putrescine (Put) + ischemia + hepatectomy group, in which the animals underwent the same procedure, but were given Put in addition to DFMO. There were 6 to 7 rats in each of the five groups. The putrescine level and ornithine decarboxylase (ODC) activity were significantly higher in the ischemia + hepatectomy group than in the control group, but were markedly decreased in the DFMO + ischemia + hepatectomy group than in the ischemia + hepatectomy group. The incorporation of [3H]thymidine in the DFMO + ischemia + hepatectomy group was significantly lower than that in the control group. The increase in the lipid peroxide level and the decrease in [3H]thymidine found in the DFMO + ischemia + hepatectomy group tended to be reversed by the administration of putrescine. The results suggest that putrescine suppressed the production of lipid peroxides and promoted DNA synthesis in regenerating the liver after ischemia-reperfusion injury.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(polyamines suppressed production of lipid peroxides and promoted DNA synthesis in **liver regeneration** after hepatectomy with ischemic injury)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 5 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:455589 CAPLUS
DOCUMENT NUMBER: 125:218666
TITLE: Changes in rat hepatic ornithine decarboxylase activity and endogeneous polyamine levels after partial hepatectomy of cirrhosis liver
AUTHOR(S): Ogawa, Ryunosuke
CORPORATE SOURCE: Dep. Surg. (II), Jikei Univ. Sch. Med., Tokyo, 105, Japan
SOURCE: Tokyo Jikeikai Ika Daigaku Zasshi (1996), 111(3), 287-294
CODEN: TJIDAH; ISSN: 0375-9172
PUBLISHER: Tokyo Jikeikai Ika Daigaku Seiikai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB Ornithine decarboxylase activity and polyamine levels were measured in

the liver of 48% partial hepatectomized rat with cirrhosis induced by carbon tetrachloride@in order to clarify their physiol. significance and mol. mechanism underlying liver regeneration, . It was reported that ornithine decarboxylase activity reached a plateau within 12 h after partial hepatectomy. These parameters were, therefore, measured at 2-h intervals up to 12 h after the operation. The results of the present study show that partial hepatectomy caused a delayed and broad induction of ornithine decarboxylase in the cirrhosis liver as compared with that in the liver without cirrhosis. Changes of putrescine concentration also showed a delayed but large peak in the cirrhosis liver. Maximum accumulation of putrescine in the cirrhosis liver was about 3 times higher than that in the liver without cirrhosis. No significant change of hepatic spermidine and spermine levels was observed in both groups after partial hepatectomy, although spermidine level in the cirrhosis liver before the operation was twice higher than that in the liver without cirrhosis. These results suggest that ornithine decarboxylase activity and putrescine concentration can be considered important indexes of liver regeneration and that the large accumulation of spermidine indicates liver cirrhosis.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(**liver regeneration** in relation to ornithine decarboxylase and polyamines after hepatectomy of tetrachloride induced liver cirrhosis)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 6 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1995:816380 CAPLUS
DOCUMENT NUMBER: 123:248999
TITLE: Effect of combined alanine and glutamine administration on the inhibition of liver regeneration caused by long-term administration of alcohol
AUTHOR(S): Tanaka, Takashi; Imano, Miki; Yamashita, Terumi; Monna, Takeyuki; Nishiguchi, Shuhei; Kuroki, Tetsuo; Otani, Shuzo; Maezono, Katsumi; Mawatari, Kazunori
CORPORATE SOURCE: Medical School, Osaka City University, Osaka, 545, Japan
SOURCE: Alcohol and Alcoholism (1994), 29(Suppl. 1, Proceedings of the 14th Annual Conference of the Japanese Society for Biomedical Research on Alcohol, 1994), 125-32
CODEN: ALALDD; ISSN: 0735-0414

PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB We studied the effect of administration of a mixture of alanine and glutamine on the inhibition of liver regeneration caused by alc. in rats undergoing partial hepatectomy 6 wk after the start of alc. administration. DNA synthesis was inhibited 24 h after partial hepatectomy in rats given alc., but treatment with alanine and glutamine partially prevented this inhibition. To identify the mechanism of this effect, polyamine metabolism was studied. Administration of alc. or alanine plus glutamine had no effect on the activity of ornithine decarboxylase, a rate-limiting enzyme of polyamine metabolism In the liver, of the three polyamines, only the spermine concentration changed significantly. It decreased during long-term administration of alc., and this decrease was prevented by treatment with alanine and glutamine. The level of N1-acetylspermidine, the acetylated product of spermidine, was increased by alc., and its elevation was significantly less when alanine and glutamine were given. Hepatic spermidine/spermine N1-acetyltransferase, the key enzyme of polyamine acetylation, was induced by long-term administration of alc., and this induction was suppressed by alanine plus glutamine. The results suggest that treatment with alanine and glutamine can help to prevent the inhibition of liver regeneration caused by alc. by maintaining the spermine level and suppressing the acetylation of spermidine.
IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(ethanol effect on alanine and glutamine in **liver regeneration**)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 7 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:694922 CAPLUS
DOCUMENT NUMBER: 121:294922
TITLE: Inhibition of hepatic regeneration by long-term feeding of ethanol to rats
AUTHOR(S): Kurai, Keiko
CORPORATE SOURCE: Department Public Health, Osaka City University Medical School, Japan
SOURCE: Osaka-shi Igakkai Zasshi (1993), 42(3), 231-50
CODEN: OIGZDE; ISSN: 0386-4103
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB Liver regeneration is important for recovery from liver injury, and

the antiregenerative effects of long-term and continued ethanol consumption may contribute to the pathogenesis and progress of liver injury in alc. subjects. To find whether the antiregenerative effects of ethanol involved changes in polyamine metabolism indexes of polyamine metabolism and DNA synthesis were compared before and during surgically induced liver regeneration in rats fed ethanol. The rats received a nutritionally adequate liquid diet for 6 wk, but 36% of the caloric content arose from ethanol. Their pair-fed controls received a liquid diet in which ethanol was replaced by other carbohydrates. Long-term ethanol consumption by the alc. group resulted in fatty infiltration of the liver. After 16 h of starvation, partial hepatectomy (70%) was performed with the rats under light ether anesthesia. Ethanol significantly inhibited [3H]thymidine incorporation into liver DNA 24 and 48 h after the operation, and markedly decreased the number of cells labeled with 5-bromo-2'-deoxyuridine 24 h after the operation. Spermidine and spermine levels in the liver were decreased in rats fed ethanol before and after the partial hepatectomy compared with the controls. There was little difference between the hepatic putrescine levels of rats fed ethanol and the control rats. No effects of alc. were observed for ornithine decarboxylase or spermidine acetyltransferase activity, but the S-adenosyl-L-methionine decarboxylase activity of the liver in the rats fed ethanol before the operation was higher than that in the control rats. Spermidine injected i.p. immediately after partial hepatectomy increased the spermidine concns. of the liver and partially increased DNA synthesis in the rats fed ethanol. These results suggest that altered polyamine metabolism, especially depletion of spermidine and spermine concns., contributes to the inhibition of liver regeneration that occurs after long-term ethanol intake.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**liver regeneration** inhibition by long-term feeding of ethanol)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

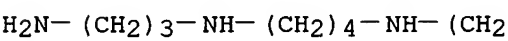
L10 ANSWER 8 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:295017 CAPLUS
DOCUMENT NUMBER: 120:295017
TITLE: Regulation of prolyl oligopeptidase activity in regenerating rat liver
AUTHOR(S): Yamakawa, Naomi; Shimeno, Hiroshi; Soeda, Shinji; Nagamatsu, Atsuo
CORPORATE SOURCE: Department of Biochemistry, Faculty of Pharmaceutical Sciences, Fukuoka University, 8-19-1 Nanakuma, Johnan-ku, Fukuoka, 814-01, Japan

SOURCE: Biochimica et Biophysica Acta, General Subjects (1994), 1199(3), 279-84
CODEN: BBGSB3; ISSN: 0304-4165
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

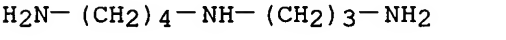
AB The authors have previously shown that the naturally occurring polyamines, spermidine and spermine, reverse effectively the in vitro inhibition of prolyl oligopeptidase (POPase) by its endogenous inhibitor by forming a kinetically significant complex (Soeda, S. et al., 1986). In this study, the authors examined changes in the activities of POPase and its endogenous inhibitor and in the concns. of polyamines during the regeneration of rat liver. POPase activity in the liver cytosol peaked 2 days after partial hepatectomy and then decreased near to control activity by 9 days, without its altered synthetic levels. Total polyamine concns. also peaked at 2 days and remained elevated by 9 days, while cytosolic POPase inhibitor activity was minimal (56% of control) at 2 days. Treatment of the animals with a synthetic POPase inhibitor, Z-Gly-Pro-CHN2 (4 mg/kg), resulted in an obvious suppression of the liver regeneration. These results imply that the activity of POPase involved in nonlysosomal proteolytic pathway is exquisitely regulated by changes not only in its endogenous inhibitor levels but also in intracellular cationic potentials such as polyamines, and that POPase plays a crucial role for the growth and differentiation of liver cell.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BIOL (Biological study)
(prolyl oligopeptidase endogenous inhibitor response to, in **liver** in **regeneration**)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 9 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:210562 CAPLUS
DOCUMENT NUMBER: 120:210562
TITLE: Gender-related differences in the inhibitory effect on liver regeneration in alcohol-treated rats: study of polyamine metabolism
AUTHOR(S): Tanaka, Takashi; Kurai, Keiko; Kunitoh, Satoru; Kondo, Kyoko; Goto, Yasutaka; Kawai, Syuji; Warashina, Muenhiro; Yamashita, Terumi; Toda, Takashi; et al.
CORPORATE SOURCE: Med. Sch., Osaka City Univ., Osaka, 545, Japan
SOURCE: Alcohol and Alcoholism (Oxford, United Kingdom) (1993), 28(1A), 15-20
CODEN: ALALDD; ISSN: 0735-0414

DOCUMENT TYPE: Journal
LANGUAGE: English
AB The authors studied gender-related differences in the effect of a single dose of EtOH on liver regeneration following partial hepatectomy in male and female rats by determining polyamines and their related enzymes. When rats were orally treated with EtOH at 3 g/kg 1 h before partial hepatectomy, liver ornithine decarboxylase (ODC) activity at 4 h posthepatectomy was lower in EtOH-treated female than male rats (51% vs. 42%, P <0.01). Although no EtOH effect was observed on spermidine acetyltransferase (SAT) activity, female rats showed significantly higher values than male rats. Among intrahepatic polyamines, putrescine was strongly affected by EtOH and significantly reduced in both male and female rats, but the effect was more marked in female than in male rats (88% vs. 51%, P <0.01). With respect to spermidine and spermine, male rats were unaffected by EtOH, whereas EtOH-treated female rats had lower levels. The gender-related differences became more distinct in terms of total polyamine; the decrease in total polyamine due to EtOH was observed in female rats only. These results suggested that there was a gender-related difference in the effect of EtOH on liver regeneration after partial hepatectomy, with the variations in polyamines probably affecting the subsequent process of liver regeneration.
IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BIOL (Biological study)
(of liver, gender-related differences in ethanol effect on **liver regeneration** after partial hepatectomy in relation to)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 10 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:46593 CAPLUS
DOCUMENT NUMBER: 120:46593
TITLE: Stimulation of liver growth by exogenous human hepatocyte growth factor in normal and partially hepatectomized rats
AUTHOR(S): Fujiwara, Kenji; Nagoshi, Sumiko; Ohno, Akihiko; Hirata, Keiichi; Ohta, Yasuhiko; Mochida, Satoshi; Tomiya, Tomoaki; Higashio, Kanji; Kurokawa, Kiyoshi
CORPORATE SOURCE: Fac. Med., Univ. Tokyo, Tokyo, 113, Japan
SOURCE: Hepatology (Philadelphia, PA, United States) (1993), 18(6), 1443-9
CODEN: HPTLD9; ISSN: 0270-9139
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Human hepatocyte growth factor stimulates DNA synthesis by cultured rat hepatocytes. When human hepatocyte growth factor prepared from the culture medium of human embryonic lung fibroblasts was i.v. injected into normal rats and rats after 70% hepatectomy, it was detected in hepatocytes but not in nonparenchymal cells isolated 30 min after injection. Similar injections of human hepatocyte growth factor at 2-h intervals for 10 h significantly increased hepatic DNA content in normal rats at 48 h, with increased hepatic content of putrescine, the essential polyamine for hepatic DNA synthesis after 70% hepatectomy, and activities of catalytic enzymes of putrescine synthesis at 6 h almost to the levels in rats after 70% hepatectomy. Those levels in rats after 70% hepatectomy were further enhanced by similar injection of human hepatocyte growth factor starting immediately after surgery. Increased hepatic DNA content in normal rats and rats after 70% hepatectomy was also seen with recombinant human hepatocyte growth factor to a greater extent compared with that seen with human hepatocyte growth factor. In normal rats given recombinant human hepatocyte growth factor, 5-bromo-2'-deoxyuridine-labeled and mitotic hepatocytes were significantly increased in number at 26 h but not at 48 h. The authors conclude that exogenous human hepatocyte growth factor acts as a trigger and a promoter of liver growth to increase hepatic putrescine production in rats. Recombinant human hepatocyte growth factor is more potent than human hepatocyte growth factor in this action.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BIOL (Biological study)
(of **liver**, in **regeneration**, human hepatocyte growth factor effect on)

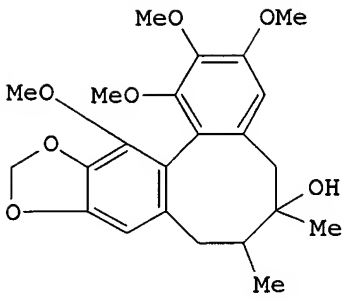
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 11 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1993:225615 CAPLUS
DOCUMENT NUMBER: 118:225615
TITLE: Effect of gomisin A (TJN-101) on liver regeneration
AUTHOR(S): Kubo, Shoji; Ohkura, Yasufumi; Mizoguchi, Yasuhiro; Matsui-Yuasa, Isao; Otani, Shuzo; Morisawa, Seiji; Kinoshita, Hiroaki; Takeda, Shigefumi; Aburada, Masaki; Hosoya, Eikichi
CORPORATE SOURCE: Med. Sch., Osaka City Univ., Osaka, 545, Japan
SOURCE: Planta Medica (1992), 58(6), 489-92
CODEN: PLMEAA; ISSN: 0032-0943
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

AB The authors studied the effect of TJN-101 (I), a lignan component of Schisandra fruits (Schisandrae fructus), on liver regeneration after partial hepatectomy. TJN-101 was given orally to male Wistar rats 30 min before partial hepatectomy. The mitotic index and the level of DNA synthesis increased after partial hepatectomy and their increase was significantly enhanced by TJN-1-1. Ornithine decarboxylase (ODC) activity increased in the early stages of liver regeneration and it was also significantly enhanced by TJN-101. Besides, TJN-1-1 enhanced the increase in hepatic putrescine. These results suggest that TJN-101 stimulates liver regeneration after partial hepatectomy by enhancing ODC activity, which is an important biochem. event in the early stages of liver regeneration.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BIOL (Biological study)
(gomisin A effect on, in **liver regeneration** stimulation)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 12 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1993:144070 CAPLUS
DOCUMENT NUMBER: 118:144070
TITLE: Spermidine acetylation during regeneration of rat liver
AUTHOR(S): Ferioli, Maria Elena
CORPORATE SOURCE: Inst. Gen. Pathol., Univ. Milan, Milan, 20133, Italy
SOURCE: Life Chemistry Reports (1992), 10, 47-9
CODEN: LCHRDM; ISSN: 0278-6281
DOCUMENT TYPE: Journal

LANGUAGE: English

AB The activity of spermidine acetyltransferase was measured in livers of rats at different times after partial hepatectomy. The time-course of enzyme activity showed an increase in the early phase of liver regeneration and a progressive decrease when there was restitution of liver mass. These results suggest a different role of the polyamine interconversion pathway in the different growth conditions of the liver.

IT **124-20-9**, Spermidine
RL: RCT (Reactant); RACT (Reactant or reagent)
(acetylation of, in **liver**, in **liver regeneration**)

RN 124-20-9 CAPLUS

CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 13 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1992:589045 CAPLUS

DOCUMENT NUMBER: 117:189045

TITLE: Polyamine transport systems in isolated rat hepatocytes derived from resting and regenerating livers

AUTHOR(S): Minuk, G. Y.; Bennaroch, A.; Ding, L. X.

CORPORATE SOURCE: Dep. Med., Univ. Manitoba, Winnipeg, MB, R3A 1R9, Can.

SOURCE: American Journal of Physiology (1992), 263(2, Pt. 1), G169-G173
CODEN: AJPHAP; ISSN: 0002-9513

DOCUMENT TYPE: Journal

LANGUAGE: English

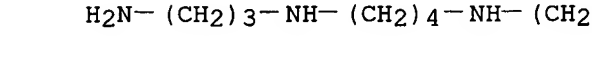
AB To determine whether the liver possesses specific polyamine transport sites and whether changes occur to these or GABA transport sites during hepatic regeneration, suspensions of rat hepatocytes derived from in situ collagenase perfusions of livers at times 0, 24, 48, and 72 h post-partial hepatectomy were incubated at 4, 20, and 37° with various concns. of the following ligands: [3H]putrescine, [3H]spermidine, [14C]spermine, and [3H]GABA together with or without excess unlabeled ligand, KCN, ouabain, or digitoxigenin. Of the ligands studied, only [14C]spermine and [3H]GABA were associated with specific binding to hepatocytes derived from nonregenerating livers. Spermine binding correlated with the concentration of hepatocytes in the incubation mixture and reached equilibrium within 60 min. The approx. affinity constant (KD) was 5.5 + 10-5 mol/106 hepatocytes, and maximum number of binding sites (Bmax) was 1.8 + 10-7 mol·106 hepatocytes-1·min-1. Binding was neither temperature nor sodium dependent and was not inhibited by KCN, ouabain, digitoxigenin, other polyamines, or GABA. Aside from a 43% decrease in spermine binding at 24 h post-partial hepatectomy [5.1 vs. 8.9 + 103 dpm/106 hepatocytes at time 0] and a 39% decrease in GABA binding (3.4 vs. 5.5 + 103 dpm/106 hepatocytes), there were no significant changes in ligand binding during hepatic regeneration. Apparently, specific binding sites do not exist for putrescine or spermidine on adult rat hepatocytes derived from nonregenerating or regenerating livers following partial hepatectomy. On the other hand, specific binding sites do exist for spermine and GABA in both nonregenerating and

regenerating livers but significantly decrease during early regeneration when maximal regenerative activity occurs.

IT **71-44-3**, Spermine
RL: BIOL (Biological study)
(transport systems for, in hepatocytes, **liver regeneration** effect on)

RN 71-44-3 CAPLUS

CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 14 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1992:423837 CAPLUS

DOCUMENT NUMBER: 117:23837

TITLE: Inhibition of increases in ornithine decarboxylase and putrescine has no effect on rat liver regeneration

AUTHOR(S): Beyer, H. Stephen; Ellefson, Mark; Stanley, Michael; Zieve, Leslie

CORPORATE SOURCE: Dep. Med., Hennepin County Med. Cent., Minneapolis, MN, 55415, USA

SOURCE: American Journal of Physiology (1992), 262(4, Pt. 1), G677-G684
CODEN: AJPHAP; ISSN: 0002-9513

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polyamides are considered critical for cell proliferation. During liver regeneration in the rat, ornithine decarboxylase (ODC) mRNA and enzyme activity and polyamines (primarily putrescine and spermidine) are known to increase substantially. The authors examined the effect of inhibition of polyamine synthesis with α-difluoromethylornithine (DFMO), an irreversible inhibitor of the ODC enzyme, on regenerating liver weight and total DNA, RNA, and protein; [3H]thymidine and [14C]leucine incorporation; number of mitotic figures; and putrescine, spermidine, and spermine contents. Rats received DFMO beginning 4 days before or immediately after 2/3 partial hepatectomy. In control rats, ODC activity, putrescine, and spermidine increased significantly during regeneration, whereas spermine was unchanged. In rats receiving DFMO, ODC and putrescine changed minimally but spermidine increased as usual. Spermine levels were modestly higher in rats receiving DFMO beginning 4 days before partial hepatectomy. However, despite ODC inhibition and substantially lower levels of putrescine, the course of liver regeneration in rats treated with DFMO was not affected. Total liver mass, DNA, RNA, and protein increased over 5 days equally in rats receiving DFMO and control rats. In addition, there were no differences in [3H]thymidine incorporation into DNA, [14C]leucine incorporation into protein, or mitotic indexes between DFMO-treated and control rats at 24 and 48 h after partial hepatectomy. These results suggest that the well-known increases in ODC activity and polyamines that occur during regeneration are not required for liver to undergo its proliferative response to partial hepatectomy.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)

(of **liver**, in **regeneration**, ornithine decarboxylase in relation to)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

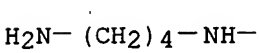
$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 15 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1992:404936 CAPLUS
DOCUMENT NUMBER: 117:4936
TITLE: Opposite responses of nuclear spermidine N8-acetyltransferase and histone acetyltransferase activities to regenerative stimuli in rat liver
AUTHOR(S): Desiderio, Maria Alfonsina
CORPORATE SOURCE: Inst. Gen. Pathol., Univ. Milan, Milan, 20133, Italy
SOURCE: Hepatology (Philadelphia, PA, United States) (1992), 15(5), 928-33
CODEN: HPTLD9; ISSN: 0270-9139
DOCUMENT TYPE: Journal
LANGUAGE: English

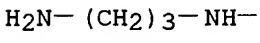
AB Expts. performed in different models of hepatic regeneration, at the time of maximal DNA synthesis as determined by thymidine kinase activity assay, demonstrated that spermidine N8-acetyltransferase activity increased 48 h after CCl4 administration (2-fold), 72 h after CCl4 plus phenobarbital (3-fold), and 24 h after partial hepatectomy (4.5-fold). On the contrary, at these times histone acetyltransferase activity diminished (.apprx.2-fold) and was unchanged compared with control values in the liver of hepatotoxin-treated and hepatectomized rats, resp. Histone acetylation was, however, enhanced 1.5-fold before the onset of DNA replication (14 h), and 3.4-fold after the peak of DNA synthesis (32 h) in the liver of hepatectomized rats. α-Difluoromethylornithine, a specific and irreversible inhibitor of ornithine decarboxylase that was administered to hepatectomized rats, blocked polyamine synthesis, thymidine kinase activity, and consequently liver regeneration 24 h after the surgery. In those conditions, spermidine N8-acetyltransferase activity was decreased .apprx.2-fold, whereas histone acetyltransferase activity was elevated .apprx.2-fold. All these effects were reversed by putrescine coadministration. Altogether, these findings showed that nuclear spermidine N8-acetyltransferase and histone acetyltransferase activities were regulated in opposite ways during the processes associated with liver regeneration. Moreover, they suggested that the polyamines themselves might have a direct or indirect role in this regulation.

IT **124-20-9**, Spermidine
RL: BIOL (Biological study)
(in histone and spermidine acetyltransferase regulation, in

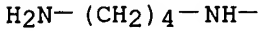
liver regeneration)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 16 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1992:209550 CAPLUS
DOCUMENT NUMBER: 116:209550
TITLE: Ethanol-associated alterations in the kinetics of putrescine uptake and metabolism by the regenerating liver
AUTHOR(S): Diehl, Anna Mae; Yang, Shi Qi; Brown, Nesbitt; Smith, Jeff; Raiford, David; Gordon, Richard; Casero, Robert
CORPORATE SOURCE: Sch. Med., Johns Hopkins Univ., Baltimore, MD, USA
SOURCE: Alcoholism: Clinical and Experimental Research (1992), 16(1), 5-10
CODEN: ACRSDM; ISSN: 0145-6008
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The authors assessed the kinetics of putrescine uptake and metabolism after i.p. or i.v. injection of radiolabeled putrescine into rats fed 36% ethanol diets or isocaloric, nonethanol diets for 6 wk prior to partial hepatectomy. After putrescine treatment, hepatic putrescine concns. were greater in ethanol-fed rats than controls. Differences in posttreatment hepatic putrescine levels between ethanol and pair-fed groups could not be explained by differences in the rates of hepatic putrescine uptake or excretion into bile, residual de novo synthesis of putrescine from ornithine or metabolism of hepatic putrescine to its polyamine products, spermidine and spermine. Indeed, supplemental putrescine was not appreciably converted to spermidine or spermine in either ethanol or control rats. Hence, these latter polyamines are unlikely to be responsible for the treatment-associated improvement in DNA synthesis that has been noted in ethanol-fed rats. This suggests that putrescine itself acts to restore hepatic DNA synthesis in ethanol-fed rats.
IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BIOL (Biological study)
(in **regenerating liver**, ethanol effect on)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

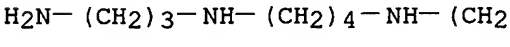


L10 ANSWER 17 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1992:56157 CAPLUS
DOCUMENT NUMBER: 116:56157
TITLE: Aging alters ornithine decarboxylase and decreases polyamines in regenerating rat liver but putrescine replacement has no effect
AUTHOR(S): Beyer, H. Stephen; Ellefson, Mark; Sherman, Robert; Zieve, Leslie
CORPORATE SOURCE: Dep. Med., Hennepin Cty. Med. Cent., Minneapolis, MN, 55415, USA
SOURCE: Journal of Laboratory and Clinical Medicine (1990), 119(1), 38-47
CODEN: JLCMAK; ISSN: 0022-2143
DOCUMENT TYPE: Journal
LANGUAGE: English

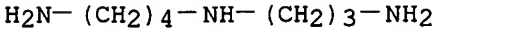
AB Aging decreases rat liver regeneration. The authors compared the expression of ornithine decarboxylase (ODC), a critical enzyme for liver regeneration, with polyamine levels in regenerating liver of 6-wk-old and 1-yr-old rats and evaluated the effect of exogenous putrescine supplementation on liver regeneration in 1-yr-old rats. ODC mRNA transcript sizes were the same in rats of both ages. ODC mRNA content and enzyme activity were higher in the younger rats; however, magnitudes of increase after partial hepatectomy were greater in the older rats. From peak levels, the rate of decline of the mRNA was slower in the older rats, but enzyme activity declined at the same rate in both ages. ODC apoenzyme content was less in normal liver tissue from 1-yr-old rats, but there was little change after partial hepatectomy in rats of either age. No change in ODC transcriptional activity was found. Hepatic putrescine levels were lower in 48 h regenerating liver tissue from 1-yr-old rats. To determine whether supplemental putrescine would increase liver regeneration in 1-yr-old rats, putrescine (600 μmol/kg i.p. every 4 h) was administered beginning 4 days before or at the time of partial hepatectomy. This raised polyamine levels and decreased ODC activity significantly, but there was no change in regenerating liver weight, total DNA and RNA content, and tritiated thymidine incorporation at 48 h. These results indicate that ODC expression is different and polyamine levels are lower in 1-yr-old rats than in 6-wk-old rats. However, putrescine supplementation that is sufficient to decrease ODC activity has no apparent effect on regeneration.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BIOL (Biological study)
(of **liver** in **regeneration**, age effect on)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



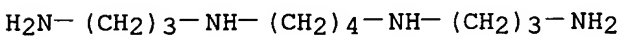
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



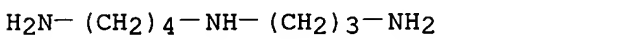
L10 ANSWER 18 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1992:1260 CAPLUS
DOCUMENT NUMBER: 116:1260
TITLE: Stimulation of putrescine production by epidermal growth factor in rat liver after partial hepatectomy
AUTHOR(S): Nagoshi, Sumiko; Tomiya, Tomoaki; Sato, Yuzuru; Oka, Yuji; Ogata, Itsuro; Fujiwara, Kenji
CORPORATE SOURCE: Fac. Med., Univ. Tokyo, Tokyo, 113, Japan
SOURCE: Hepatology (Philadelphia, PA, United States) (1991), 14(5), 901-5
CODEN: HPTLD9; ISSN: 0270-9139
DOCUMENT TYPE: Journal
LANGUAGE: English

AB When EGF was given to rats after partial hepatectomy, hepatic putrescine content was significantly increased at 4, 6, and 10 h compared with control rats. Ornithine decarboxylase (ODC) activity was also increased. Hepatic ODC mRNA content was significantly greater than control levels at 2 h after EGF treatment, but not at 10 h, when the amount of ODC mRNA in control animals was 4-fold that at 2 h. When actinomycin D was administered 6 h after partial hepatectomy, hepatic ODC activity at 10 h was reduced to half the control levels. This reduction was attenuated by EGF treatment at 6 and 8 h. Hepatic immunoreactive ODC protein content showed a highly pos. correlation with hepatic ODC activity at 4, 6 and 10 h, irresp. of EGF treatment. Hepatic spermidine N1-acetyltransferase activity was significantly increased at 6 h compared with control rats. These results suggest that, after partial hepatectomy in rats, exogenous EGF may stimulated hepatic putrescine production by increasing ODC mRNA content and altering posttranscriptional ODC regulation, as well as enhancing spermidine N1-acetyltransferase activity.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BIOL (Biological study)
(of **liver**, in **regeneration**, EGF effect on)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 19 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1991:39955 CAPLUS
DOCUMENT NUMBER: 114:39955
TITLE: Changes in serum and hepatic polyamine concentrations after 30%, 70% and 90% partial hepatectomy in rats
AUTHOR(S): Minuk, Gerald Y.; Gauthier, Tony; Benarroch, Abraham
CORPORATE SOURCE: Dep. Med., Univ. Manitoba, Winnipeg, MB, R3A 1R9,

Can.
SOURCE: Hepatology (Philadelphia, PA, United States) (1990), 12(3, Pt. 1), 542-6
CODEN: HPTLD9; ISSN: 0270-9139
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To determine whether changes in systemic or hepatic polyamine concns. correlate with the extent of the regenerative stimulus, serum and tissue putrescine, spermidine, and spermine concns. were determined in groups of adult male rats 0, 24, 48, and 72 h after 30%, 70%, or 90% partial hepatectomy. Serum putrescine levels were variably increased after partial hepatectomy and did not correlate with hepatic regenerative activity. Serum spermidine levels remained unaltered and spermine levels were undetectable both before and after partial hepatectomy. In hepatic tissue, only putrescine concns. increased in proportion to the extent of hepatic resection. Moreover, there was a significant correlation between hepatic putrescine concns. and restitution of liver mass, DNA synthesis, and protein synthesis. No significant correlations existed between hepatic spermidine or spermine concns. and these parameters of hepatic regeneration. Apparently, hepatic putrescine plays an important role in stimulating hepatic regeneration after partial hepatectomy.

IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BIOL (Biological study)
(of blood serum and **liver**, in **liver regeneration**, degree of hepatectomy effect on)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 20 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1990:418196 CAPLUS
DOCUMENT NUMBER: 113:18196
TITLE: Influences of adrenoceptor blockades and nifedipine on the polyamine metabolism in regenerating rat liver
AUTHOR(S): Choi, Sang Hyun; Lee, Hye Jung; Chun, Boe Gwun; Chun, Yeon Sook
CORPORATE SOURCE: Coll. Med., Korea Univ., Seoul, 110-522, S. Korea
SOURCE: Korean Journal of Pharmacology (1989), 25(2), 199-207
CODEN: KJPHE3; ISSN: 0377-9459
DOCUMENT TYPE: Journal
LANGUAGE: English

AB After partial hepatectomy, both the putrescine and spermine contents of male rat liver showed an initial rapid increase of ≥416.01% and 131.92%, resp., of the control values, at 6 h and then fell nearly

to the control values at 48 h. However, the spermidine content exhibited an initial rapid increase (to 164.05% of the control value at 6 h) followed by a consecutive increase (to 241.64% at 48 h). The marked increase of the putrescine content was inhibited by prazosin 5 mg/kg, propranolol 10 mg/kg, or nifedipine 15 mg/kg, but it was not affected by yohimbine 5 mg/kg or atenolol 10 mg/kg. Also, the changes of the spermidine and spermine contents occurring after hepatectomy were not affected by any of the above adrenoceptor blockades as well as nifedipine. After hepatectomy, the remnant liver (29.7% of prehepatectomy liver weight) was restored to 52.1% at 48 h, and the weight restoration rate was not affected by any of the above substances. Apparently, the initial induction of hepatic ornithine decarboxylase occurring after partial hepatectomy is dependent on the α1- and β2-adrenoceptors as well as on the Ca2+ influx sensitive to Ca2+ channel blockers, such as nifedipine.

IT **71-44-3P**, Spermine **124-20-9P**, Spermidine
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PREP (Preparation); PROC (Process)
(metabolism of, by **liver** in **regeneration**, adrenergic receptors and calcium channels in regulation of)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 21 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1990:154186 CAPLUS
DOCUMENT NUMBER: 112:154186
TITLE: Changes in inhibition of S-adenosyl-L-methionine decarboxylase in regenerating rat liver
AUTHOR(S): Ferioli, Maria Elena; Candiani, Rossella; Rocca, Emilio; Scalabrino, Giuseppe
CORPORATE SOURCE: Inst. Gen. Pathol., Univ. Milan, Milan, 20133, Italy
SOURCE: Biogenic Amines (1989), 6(6), 513-24
CODEN: BIAME7; ISSN: 0168-8561
DOCUMENT TYPE: Journal
LANGUAGE: English

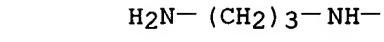
AB S-Adenosyl-L-methionine (AdoMet) decarboxylase (I) was purified from regenerating rat liver and from liver from sham-operated rats, to determine whether the enzymes from the 2 are controlled in the same way. Among the compds. tested, 5'-methylthioadenosine preferentially inhibited I from liver from sham-operate rats, whereas decarboxylated AdoMet and 2'-chlorodeoxyadenosine were more active with regenerating liver I. Spermine inhibited I from liver from sham-operated rats, but had practically no effect on regenerating liver I. Methylglyoxal bis(guanylhydrazone) inhibited I from both sources, with I from regenerating liver being preferentially inhibited. The decay time of

I in 96-h-regenerating liver was significantly longer than that observed in liver from sham-operated rats.

IT **71-44-3**, Spermine
RL: BIOL (Biological study)
(adenosylmethionine decarboxylase of **regenerating liver** inhibition by, kinetics of)

RN 71-44-3 CAPLUS

CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 22 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1990:134275 CAPLUS

DOCUMENT NUMBER: 112:134275

TITLE: Effect of ethanol on polyamine synthesis during liver regeneration in rats

AUTHOR(S): Diehl, Anna Mae; Wells, Michael; Brown, Nesbitt D.; Thorgeirsson, Snorri S.; Steer, Clifford J.

CORPORATE SOURCE: Dep. Med., Veterans Adm. Med. Cent., Washington, DC, 20422, USA

SOURCE: Journal of Clinical Investigation (1990), 85(2), 385-90
CODEN: JCINAO; ISSN: 0021-9738

DOCUMENT TYPE: Journal

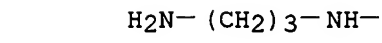
LANGUAGE: English

AB To determine if the antiregenerative effects of ethanol involve modulation of polyamine metabolism, parameters of polyamine synthesis were compared before and during surgically induced liver regeneration in ethanol-fed rats and isocalorically maintained controls. After partial hepatectomy, induction of the activity of ornithine decarboxylase (ODC), the rate-limiting enzyme for polyamine synthesis, was delayed in rats that had been fed ethanol. This was correlated with reduced levels of putrescine, ODC's immediate product. Increases in hepatic spermidine and spermine were also inhibited. Differences in ODC activity between ethanol-fed and control rats could not be explained by differences in the expression of ODC mRNA or by differences in ODC apoenzyme concns., suggesting that chronic ethanol intake inactivates ODC posttranslationally. Supplemental putrescine, administered at partial hepatectomy and 4 and 8 h thereafter, increased hepatic putrescine concns. and markedly improved DNA synthesis and liver regeneration in ethanol-fed rats. These data suggest that altered polyamine metabolism may contribute to the inhibition of liver regeneration that occurs after chronic exposure to ethanol.

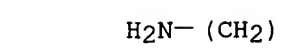
IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: FORM (Formation, nonpreparative)
(formation of, by **liver** in **regeneration**, ethanol effect on)

RN 71-44-3 CAPLUS

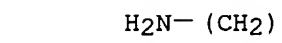
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



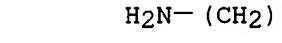
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 23 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1987:117227 CAPLUS
DOCUMENT NUMBER: 106:117227
TITLE: Evolution of red blood cell polyamine levels in partially hepatectomized rat
AUTHOR(S): Moulinoux, Jacques Philippe; Quemener, Veronique; Chambon, Yves
CORPORATE SOURCE: Cent. Hosp., Univ. Rennes, Rennes, 35043, Fr.
SOURCE: European Journal of Cancer & Clinical Oncology (1987), 23(2), 237-44
CODEN: EJCODS; ISSN: 0277-5379
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Erythrocyte levels of polyamines, especially of spermidine (I), were greatly elevated during rat liver regeneration. In contrast to putrescine (II) and spermine levels, from the rat 10th hour to the 4th week after partial hepatectomy, a correlation was observed between the elevation of liver and erythrocyte I concns. Substituting drinking water with 2% α-difluoromethylornithine (α-DFMO) commencing 48 h prior to partial hepatectomy and continuing until death, although ineffective in inhibiting liver [3H]thymidine incorporation, prevented the rise in hepatic II concns. (without modifying those of I and spermine) and correlatively decreased erythrocyte I levels. Thus, an excess of liver I produced from an excess of newly synthesized I could be released in blood and taken up by erythrocytes, especially as the affinity of erythrocytes for I is ≥30-fold higher than that for II. In vivo the I half-life in erythrocytes was estimated to be 2.5-3.0 h, which could explain the elevation of erythrocyte and liver I levels. The elevation of erythrocyte I concentration was not correlated to that of the regenerating liver weight but dependent on the extent of partial hepatectomy. The elevation of erythrocyte I concns., which appeared to be linked to the cellular proliferating activity, could contribute to the determination of intratumoral proliferation in cancer patients.
IT **71-44-3**, Spermine **124-20-9**, Spermidine
RL: BIOL (Biological study)
(of erythrocytes, in **liver regeneration**)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

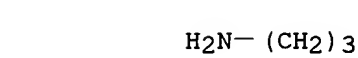


L10 ANSWER 24 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1986:623845 CAPLUS
DOCUMENT NUMBER: 105:223845
TITLE: Effect of splenectomy on liver regeneration and polyamine metabolism after partial hepatectomy
AUTHOR(S): Kubo, Shoji; Matsui-Yuasa, Isao; Otani, Shuzo; Morisawa, Seiji; Kinoshita, Hiroaki; Sakai, Katsuji
CORPORATE SOURCE: Med. Sch., Osaka City Univ., Osaka, 545, Japan
SOURCE: Journal of Surgical Research (1986), 41(4), 401-9
CODEN: JSGRA2; ISSN: 0022-4804
DOCUMENT TYPE: Journal
LANGUAGE: English

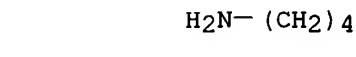
AB The effect of splenectomy on hepatic ornithine decarboxylase (ODC) induction, DNA synthesis, and mitosis of hepatocytes was studied in rat liver after partial hepatectomy. ODC activity markedly increased in the early stages of liver regeneration, and the increase in the activity was enhanced in splenectomized rats. Splenectomy specifically induced ODC, since tyrosine aminotransferase and general protein synthesis were not affected. Splenectomy also enhanced increase in hepatic polyamines, DNA synthesis, and mitosis in regenerating liver. Apparently, splenectomy affects liver regeneration after partial hepatectomy by enhancing induction of ODC activity, which is an important biochem. event in the early stage of liver regeneration.

IT **71-44-3P 124-20-9P**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PREP (Preparation); PROC (Process)
(metabolism of, by **liver** in **regeneration**, spleen effect on)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 25 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1986:531551 CAPLUS
DOCUMENT NUMBER: 105:131551
TITLE: Polyamine biosynthesis and monooxygenase enzyme activity in rat liver cirrhosis and regeneration
AUTHOR(S): Raunio, H.; Rautio, A.; Arranto, A. J.; Saarni, H. U.
CORPORATE SOURCE: Dep. Pharmacol., Univ. Oulu, Oulu, 90220, Finland
SOURCE: Research Communications in Chemical Pathology and Pharmacology (1986), 53(2), 159-65
CODEN: RCOCB8; ISSN: 0034-5164

DOCUMENT TYPE: Journal
LANGUAGE: English
AB Chemical-induced liver cirrhosis in the rat was associated with an increased biosynthesis of the hepatic polyamines putrescine and spermidine and a reduction in the activities of the cytochrome P 450-associated monooxygenase enzymes aryl hydrocarbon hydroxylase, ethoxycoumarin O-deethylase, and ethoxyresorufin O-deethylase. These parameters were normalized after a 4-wk spontaneous regeneration period. The results suggest an independent regulatory mechanism of polyamine biosynthesis and monooxygenase expression.
IT **124-20-9**
RL: FORM (Formation, nonpreparative)
(formation of, by **liver** in cirrhosis and **regeneration**)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 26 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1986:440172 CAPLUS
DOCUMENT NUMBER: 105:40172
TITLE: Increased urinary polyamine excretion during liver regeneration
AUTHOR(S): Anehus, Siw; Yngner, Torsten; Hafstroem, Larsolof; Heby, Olle
CORPORATE SOURCE: Dep. Zoophysiol., Univ. Lund., Lund, S-223 62, Swed.
SOURCE: Biochemical Medicine and Metabolic Biology (1986), 35(3), 322-6
CODEN: BMMBES; ISSN: 0885-4505
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The 24-h urines of rats were collected during 6 consecutive days after partial (.apprx.70%) hepatectomy. Rat liver regeneration is characterized by a proliferation wave with a maximum 24 h after the operation. The 24-h putrescine excretion reached a maximum 2 days after the operation and then decreased. The 24-h spermidine excretion increased during the 2nd day following the operation and remained essentially unchanged during the rest of the exptl. period. Although there is an apparent correlation between elevated urinary polyamine excretion and proliferative activity, concurrent permeability changes and necrotic events may contribute to the increase in polyamine excretion.
IT **124-20-9P**
RL: PREP (Preparation)
(of urine, during **liver regeneration**, cell proliferation in relation to)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 27 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1986:104053 CAPLUS
DOCUMENT NUMBER: 104:104053
TITLE: Early stimulation of polyamine biosynthesis during promotion by phenobarbital of diethylnitrosamine-induced rat liver carcinogenesis. The effects of variations of the S-adenosyl-L-methionine cellular pool
AUTHOR(S): Feo, Francesco; Garcea, Renato; Daino, Lucia; Pascale, Rosa; Pirisi, Lucia; Frassetto, Serenella; Ruggiu, Maria Emilia
CORPORATE SOURCE: Ist. Patol. Gen., Univ. Sassari, Sassari, 07100, Italy
SOURCE: Carcinogenesis (1985), 6(12), 1713-20
CODEN: CRNGDP; ISSN: 0143-3334
DOCUMENT TYPE: Journal
LANGUAGE: English
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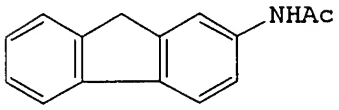


I

AB A decrease of S-adenosyl-L-methionine [29908-03-0] liver content was observed 14-35 days after the start of 2-acetylaminofluorene (I) [53-96-3] feeding in DENA [55-18-5]-initiated rats according to the resistant-hepatocyte model of hepatocarcinogenesis. The decrease was enhanced by phenobarbital [50-06-6] given in the animals after the end of I feeding. These changes were associated with an increase in ornithine decarboxylase [9024-60-6] activity and the spermidine [**124-20-9**]-to-spermine [**71-44-3**] ratio. S-Adenosyl-L-methionine administration to rats caused a great fall in the percentage of γ-glutamyltranspeptidase [9046-27-9]-pos. liver cells as well as in polyamine synthesis. An increase in ornithine decarboxylase activity, associated with a decrease in the liver S-adenosyl-L-methionine pool, also occurred in normal animals on the 1st day following a partial hepatectomy and was enhanced by phenobarbital. The association of I feeding with partial hepatectomy resulted in a slower **liver regeneration**, whereas the decrease in S-adenosyl-L-methionine level and the increase in polyamine synthesis were observed over a longer period of time after partial hepatectomy. These changes were further prolonged in DENA-initiated rats in which γ-glutamyltranspeptidase-pos. foci developed. In these animals, a high level of polyamine synthesis was still present when **liver regeneration** was complete. At this stage, the labeling index was very low in surrounding liver, but still high in the γ-glutamyltranspeptidase-pos. areas. Phenobarbital stimulated polyamine synthesis and cell growth and further prolonged the period during which a high ornithine decarboxylase activity and labeling index were present. Apparently, the liver lipotrope content could be a rate-limiting factor for cell growth and liver neoplasia promotion and this could depend on the modulation of polyamine biosynthesis.

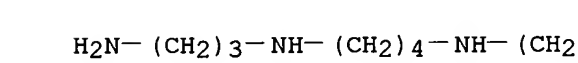
L10 ANSWER 28 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1986:66909 CAPLUS
DOCUMENT NUMBER: 104:66909
TITLE: Dynamics of polyamines in regenerating rat liver after biliary obstruction
AUTHOR(S): Asai, Masanori; Matsumoto, Takatoshi; Furuta, Tamaki; Kurokawa, Yoshie; Tokoro, Masahiko; Miyazaki, Yoshiki; Iwase, Masanori; Nimura, Yuji
CORPORATE SOURCE: Sch. Med., Nagoya Univ., Nagoya, 466, Japan
SOURCE: Polyamines: Basic Clin. Aspects, Proc. Satell. Symp. (1985), Meeting Date 1984, 463-9. Editor(s): Imahori, Kazutomo. VNU Sci. Press: Utrecht, Neth.
CODEN: 54HBAT
DOCUMENT TYPE: Conference
LANGUAGE: English

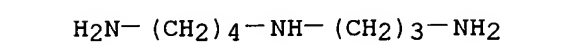
AB In rats with partial hepatectomy following biliary obstruction, putrescine levels increased in the liver; biliary decompression reversed this increase. Similar changes were not observed in the hepatic levels of spermine or spermidine. The levels of putrescine in the liver also increased in animals with biliary obstruction without hepatectomy. The increase in the levels of putrescine in either case was not due to decreased excretion via the bile; other mechanisms for this effect are proposed.

IT **71-44-3 124-20-9**
RL: BIOL (Biological study)
(of **liver**, in **regeneration** after biliary obstruction)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 29 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1985:404529 CAPLUS
DOCUMENT NUMBER: 103:4529
TITLE: Effect of splenectomy on liver regeneration after partial hepatectomy. Polyamine metabolism
AUTHOR(S): Kubo, Shoji; Matsui, Isao; Otani, Shuzo; Morisawa, Seiji; Kinoshita, Hiroaki; Sakai, Katsuji
CORPORATE SOURCE: Med. Sch., Osaka City Univ., Osaka, Japan
SOURCE: Nippon Shokakibyo Gakkai Zasshi (1985), 82(1), 100-7
CODEN: NIPAA4; ISSN: 0369-4259
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB The effect of splenectomy on hepatic polyamine content and DNA synthesis was studied in rat liver regeneration after partial hepatectomy. The activity of ornithine decarboxylase (ODC), a

rate-limiting enzyme in polyamine biosynthesis, markedly increased in the early stages of liver regeneration, and the increase in this enzyme activity was enhanced in splenectomized rats. The effect of splenectomy was specific for the induction of ODC, since tyrosine aminotransferase activity was not affected. Splenectomy also enhanced increases in hepatic polyamines and DNA synthesis in the regenerating liver. These results suggest that splenectomy affects liver regeneration after partial hepatectomy by enhancing the induction of ODC activity, which is an important early biochem. event in liver regeneration.

IT **124-20-9**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(metabolism of, by **liver** in **regeneration** after partial hepatectomy, splenectomy effect on)

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 30 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1983:211135 CAPLUS
DOCUMENT NUMBER: 98:211135
TITLE: Urinary polyamine excretion as related to cell death and cell proliferation induced by carbon tetrachloride intoxication
AUTHOR(S): Anehus, Siw; Yngner, Torsten; Engelbrecht, Claes; Hafstroem, Larsolof; Heby, Olle
CORPORATE SOURCE: Dep. Zoophysiol., Univ. Lund, Lund, S-223 62, Swed.
SOURCE: Experimental and Molecular Pathology (1983), 38(2), 255-63
CODEN: EXMPA6; ISSN: 0014-4800
DOCUMENT TYPE: Journal
LANGUAGE: English

AB CCl4 [56-23-5] produces an initial phase of liver cell death in rats succeeded by a regenerative phase of growth, during which the liver is restored. The highest rate of putrescine [110-60-1] (and spermidine [**124-20-9**]) excretion occurred during the 1st 24 h of CCl4 intoxication and coincided with the period of maximum liver damage. During subsequent **liver regeneration** the rate of excretion of both polyamines decreased.

L10 ANSWER 31 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1983:100871 CAPLUS
DOCUMENT NUMBER: 98:100871
TITLE: The in vivo effects of a polyamine analog on tissue stem cell proliferation
AUTHOR(S): Rupniak, H. Thomas; Gladden, Jeffrey G.; Paul, Dieter
CORPORATE SOURCE: Sch. Med., Temple Univ., Philadelphia, PA, 19140, USA
SOURCE: European Journal of Cancer & Clinical Oncology (1982), 18(12), 1353-9
CODEN: EJCODS; ISSN: 0277-5379
DOCUMENT TYPE: Journal

LANGUAGE: English
AB Continuous infusion of 1,3-diaminopropane (DAP) [109-76-2] into rats that had been partially hepatectomized prevented the subsequent waves of spermidine [**124-20-9**] and DNA synthesis from taking place in the **regenerating liver**. The inhibition of DNA synthesis was accounted for primarily by a block in the entry of hepatocytes into the S phase and not by a reduction in the rate of DNA synthesis itself. In contrast to the effect in the **regenerating liver**, DAP exerted minimal effects upon the proliferation of the gut epithelium and bone marrow elements. The proliferation of stem cells of these latter tissues, which are normally in a state of rapid and continuous proliferation, unlike the liver, was thus much more resistant to perturbations in polyamine biosynthesis and function. Since DAP does not arrest the proliferation of the rapidly dividing tissues that are most susceptible to cytotoxic damage in vivo, DAP cannot be employed as an agent to protect these tissues.

L10 ANSWER 32 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1982:607939 CAPLUS
DOCUMENT NUMBER: 97:207939
TITLE: Use of polyamine levels to study the antitumor activity of natural substances; use of hepatic regeneration as a model
AUTHOR(S): Quemener, V.; Moulinoux, J. P.; Girre, L.
CORPORATE SOURCE: Fac. Med., Univ. Rennes, Rennes, 35043, Fr.
SOURCE: Journal of Natural Products (1982), 45(5), 608-16
CODEN: JNPRDF; ISSN: 0163-3864
DOCUMENT TYPE: Journal
LANGUAGE: French
AB Changes in hepatic spermine [**71-44-3**], spermidine [**124-20-9**], and putrescine [110-60-1] levels in partially hepatectomized rats following treatment with colchicine [64-86-8], vinblastine [865-21-4], or 9-methoxyellipticine lactate [32416-57-2] are described, and the results interpreted in relation to the mechanism (antimitotic, intercalating, etc.) of the antitumor activity of the 3 natural products tested. The possibility of using polyamine level measurements in the **regenerating liver** as indicators of antitumor activity and in classifying neoplasm inhibitors is considered.
IT **71-44-3 124-20-9**
RL: BIOL (Biological study)
(of **regenerating liver**, neoplasm inhibitors effect on, mechanism in relation to)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 33 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1982:594141 CAPLUS
DOCUMENT NUMBER: 97:194141
TITLE: Biochemical studies on liver injury and regeneration following carbon tetrachloride administration to rats
AUTHOR(S): Kobayashi, Yuichi
CORPORATE SOURCE: Med. Sch., Osaka City Univ., Osaka, Japan
SOURCE: Osaka-shiritsu Daigaku Igaku Zasshi (1981), 30(2), 287-303
CODEN: OSDIAF; ISSN: 0472-1446
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB CCl4 [56-23-5] elevated serum glutamic-oxalacetic and glutamic-pyruvic transmission (liver injury indicators) with a maximum being attained 12-24 h after administration. DNA synthesis in the liver reached a maximum 3 days after CCl4 injection. putrescine [110-60-1], spermidine [**124-20-9**], And spermine [**71-44-3**] levels in the liver were altered by CCl4. CCl4 caused a dose-dependent increase in hepatic ornithine decarboxylase [9024-60-6]. **Liver regeneration** was observed following injury by small doses of CCl4.

L10 ANSWER 34 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1982:489762 CAPLUS
DOCUMENT NUMBER: 97:89762
TITLE: Urea and polyamine synthesis in rat liver: growth and differentiation
AUTHOR(S): Nagarajan, B.; Gopalakrishna, R.
CORPORATE SOURCE: Dep. Microbiol., Cancer Inst., Madras, 600 020, India
SOURCE: Indian Journal of Biochemistry & Biophysics (1982), 19(3), 204-7
CODEN: IJBBBQ; ISSN: 0301-1208
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Activities of some enzymes and concns. of metabolites involved in ornithine metabolism were estimated in 3 different growth systems, viz. newborn rat liver, regenerating liver, and hepatoma, and the changes were compared with normal adult liver. The activity of the neutral isoenzyme of arginase increased only in hepatoma. The activities of arginase and ornithine carbamyltransferase were not altered in regenerating liver but were low in liver at birth and in hepatoma. A decrease in ornithine transaminase activity was observed in all 3 growth systems. Though ornithine decarboxylase activity was high in all the systems, the increase was maximal in the regenerating liver. Increase in putrescine, spermidine, and in the molar ratio of spermidine/spermine was observed in all 3 growth processes. Spermine increased only in hepatoma and ornithine only in regenerating liver.
IT **71-44-3 124-20-9**
RL: BIOL (Biological study)
(of hepatoma and **liver** of newborn and in **regeneration**, differentiation and growth in relation to)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 35 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1982:119767 CAPLUS
DOCUMENT NUMBER: 96:119767
TITLE: Effect of α-difluoromethylornithine on polyamine and DNA synthesis in regenerating rat liver. Reversal of inhibition of DNA synthesis by putrescine
AUTHOR(S): Poso, Hannu; Pegg, Anthony E.
CORPORATE SOURCE: Milton S. Hershey Med. Cent., Pennsylvania State Univ., Hershey, PA, 17033, USA
SOURCE: Biochimica et Biophysica Acta, Gene Structure and Expression (1982), 696(2), 179-86
CODEN: BBGSD5; ISSN: 0167-4781
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The possibility that α-difluoromethylornithine, a specific, irreversible inhibitor of ornithine decarboxylase could be used to prevent the rise in hepatic putrescine and spermidine content following partial hepatectomy was tested in rats. α-Difluoromethylornithine, 400 mg/kg, i.p. every 4 h reduced hepatic putrescine to <2 nmol/g, but had only a small effect on the rise in spermidine at 28 h after partial hepatectomy. Such treatment also reduced the rise in DNA synthesis produced by partial hepatectomy by up to 70%. The inhibitory effect towards DNA synthesis could be reversed by administration of putrescine which increased the hepatic putrescine content to about 30-40% of that in the regenerating control livers. Apparently, accumulation of putrescine rather than spermidine is needed for DNA synthesis after partial hepatectomy. Also part, but not all, of the rise in putrescine normally seen in the liver after partial hepatectomy appears to be needed for the enhanced DNA synthesis associated with liver regeneration. Expts. with lower doses of α-difluoromethylornithine showed that a substantial part of the rise in hepatic ornithine decarboxylase activity could be abolished without affecting either the rise in spermidine content or the increase in DNA synthesis after partial hepatectomy.
IT **124-20-9**
RL: BIOL (Biological study)
(DNA formation by **regenerating liver** in relation to)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 36 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1982:46245 CAPLUS
DOCUMENT NUMBER: 96:46245
TITLE: Action of aminoguanidine sulfate on hepatic levels of polyamines after partial hepatectomy in the rat
AUTHOR(S): Moulinoux, J. P.; Quemener, V.; Chambon, Y.
CORPORATE SOURCE: Unites Enseign. Rech. Pharm., Univ. Rennes, Fr.
SOURCE: Comptes Rendus des Seances de la Societe de Biologie et de Ses Filiales (1981), 175(6), 828-34
CODEN: CRSBAW; ISSN: 0037-9026
DOCUMENT TYPE: Journal
LANGUAGE: French
AB aminoguanidine (I) [79-17-4], injected s.c. into partially hepatectomized rats increased hepatic polyamine levels (spermine [71-44-3] > spermidine [124-20-9] > putrescine [110-60-1]) within the 1st 3 h following injection. This was followed in the case of spermine and putrescine by decreases to levels lower than those observed in hepatectomized animals not treated with I. Spermidine levels decreased at 6 h and beginning at 48 h increased remaining greater than those in nontreated animals until 4 h after treatment.
IT **71-44-3 124-20-9**
RL: BIOL (Biological study)
(of **liver** during **regeneration**, aminoguanidine effect on)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 37 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1981:530465 CAPLUS
DOCUMENT NUMBER: 95:130465
TITLE: Effect of possible trigger substance of liver regeneration on polyamine concentrations
AUTHOR(S): Hibasami, Hiroshige; Tanaka, Minoru; Nagai, Jun; Ikeda, Tadao
CORPORATE SOURCE: Sch. Med., Mie Univ., Tsu, Japan
SOURCE: Mie Medical Journal (1981), 30(3), 239-44
CODEN: MMJJAI; ISSN: 0026-3532
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Biliverdin (I) a possible trigger substance of liver regeneration, increased the putrescine concentration and decreased the spermidine concentration in the remnant liver of partially hepatectomized rats. Induced activity of ornithine decarboxylase by I, as shown in intact rat liver, and suppression of spermidine synthase activity by I, as demonstrated in vitro, may be responsible for these effects. Aminoguanidine, an inhibitor of diamine oxidase, enhanced the increase in the putrescine

concentration caused by I in regenerating rat liver. This increase paralleled the increase in the rate of DNA synthesis. Imidazole, an inhibitor of thromboxane biosynthesis, had no effect on the polyamine concns.

IT **124-20-9**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(of **liver**, in **regeneration**, biliverdin effect on)

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 38 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1981:530464 CAPLUS
DOCUMENT NUMBER: 95:130464
TITLE: Polyamine synthesis in regenerating rat liver
AUTHOR(S): Hibasami, Hiroshige; Tanaka, Minoru; Nagai, Jun; Ikeda, Tadao
CORPORATE SOURCE: Sch. Med., Mie Univ., Tsu, Japan
SOURCE: Mie Medical Journal (1981), 30(3), 233-7
CODEN: MMJJAI; ISSN: 0026-3532
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The ornithine decarboxylase activity of the regenerating rat liver showed 1 peak at 10 h followed by another lower peak at 20 h after partial hepatectomy. The putrescine concentration also attained a maximum at 10 h and then decreased to the basal level. Both spermidine synthase activity and spermidine concentration reached a maximum at .apprx.2-3 days, whereas spermine synthase activity as well as spermine concentration hardly changed at all. S-Adenosylmethionine decarboxylase activity showed a maximum at 2 days. DNA synthesis demonstrated 2 maximum: the 1st at 1 day and the 2nd at 2 days corresponding to the S phase of the cell cycle.

IT **124-20-9**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(of **liver**, in **regeneration**)

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

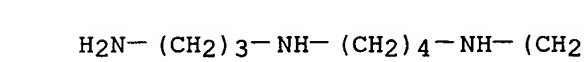
L10 ANSWER 39 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1981:189489 CAPLUS
DOCUMENT NUMBER: 94:189489
TITLE: Increased nuclear conjugated polyamines and transglutaminase during liver regeneration
AUTHOR(S): Haddox, Mari K.; Russell, Diane Haddock
CORPORATE SOURCE: Health Sci. Cent., Univ. Arizona, Tucson, AZ, 85724, USA
SOURCE: Proceedings of the National Academy of Sciences of

the United States of America (1981), 78(3), 1712-16
CODEN: PNASA6; ISSN: 0027-8424
DOCUMENT TYPE: Journal
LANGUAGE: English

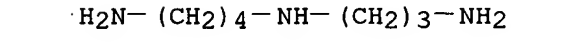
AB The nuclear content of conjugated polyamines increased during rat liver regeneration. Conjugated polyamines isolated from the acid-precipitable fraction of nuclei required peptide bond hydrolysis for release of the parent compds. The most striking change occurred in conjugated putrescine which fluctuated in a biphasic manner; maximal nuclear levels 12- and 25-fold above those of sham-operated controls were achieved at 4 and 42 h after hepatectomy, resp. Conjugated spermidine and spermine increased 3- and 2-fold, resp., within 4 h and remained high throughout the 48 h studied. When expressed on the basis of mg of nuclear protein, the maximal conjugated putrescine increased 19-fold, conjugated spermidine increased 2-fold, and conjugated spermine decreased by 50%. Therefore, the spermidine and spermine conjugates may be of a more constitutive nature, whereas the large changes in the nuclear conjugation of putrescine associated with the onset of growth may play a regulatory role. The nucleus also also contained transglutaminase (EC 2.3.2.13), an enzyme shown in vitro to conjugate polyamines covalently to proteins. The sp. activity of the nuclear enzyme increased rapidly after partial hepatectomy to a level 3-fold above control at 4 h and 7-fold above control at 42 h. The increased conjugating activity resulted from an increase in detectable maximal velocity and not a change in affinity of the enzyme for putrescine (Km .simeq. 0.4 mM). There was also a 3-fold increase at 42 h in the number of nuclear amine acceptor sites present to which radiolabeled putrescine could be conjugated by endogenous enzyme.

IT **71-44-3D**, conjugated **124-20-9D**, conjugated
RL: BIOL (Biological study)
(of cell nucleus of **liver** in **regeneration**)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

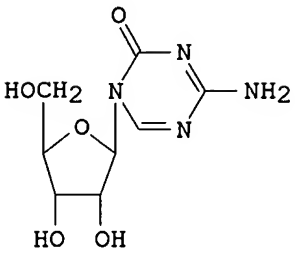


RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 40 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1981:151303 CAPLUS
DOCUMENT NUMBER: 94:151303
TITLE: The role of putrescine in modulation of DNA synthesis in regenerating liver of rats pretreated with 5-azacytidine
AUTHOR(S): Inoue, Hideo; Konishi, Yotaro; Takeda, Yoshiro; Cihak, Alois
CORPORATE SOURCE: Sch. Dent., Tokushima Univ., Tokushima, 770, Japan
SOURCE: Journal of Biochemistry (Tokyo, Japan) (1981),

89(3), 861-9
CODEN: JOBIAO; ISSN: 0021-924X
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



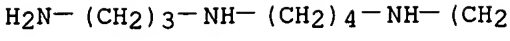
I

AB The relation between polyamine metabolism and DNA synthesis in **regenerating liver** was investigated using normal and 5-azacytidine (I) [320-67-2]-treated rats. The increase of DNA synthesis in **regenerating** rat **liver** was completely inhibited by the administration of I 1 h after partial hepatectomy. On the contrary, early and enhanced increase (modulation) of DNA synthesis was observed when I was injected 24 h before partial hepatectomy. Changes in ornithine decarboxylase EC 4.1.1.17 [9024-60-6] activity and the tissue levels of polyamines in liver remnants showed similar patterns in normal and I-pretreated rats, except that the putrescine [110-60-1] level in removed liver and the spermidine [**124-20-9**] level in the S-phase were significantly higher in the drug-pretreated rats. On the other hand, a single injection of I into intact rats evoked a marked increase in hepatic ornithine decarboxylase activity followed by an increase in the tissue level of putrescine, but not of spermidine or spermine [**71-44-3**]. No similar increase in the enzyme activity was detected after injection of 5-aza-2'-deoxycytidine [2353-33-5], which did not cause modulation of DNA synthesis. No modulation of DNA synthesis in **regenerating liver** of rats pretreated with I was observed when partial hepatectomy was carried out before an increase of the hepatic level of putrescine. In addition, a pos. and highly significant correlation was observed between the level of putrescine in the liver removed at partial hepatectomy and the extent of modulation of DNA synthesis in the **regenerating liver** of rats pretreated with I. Apparently, putrescine plays an important role in modulation of DNA synthesis and may have ≥2 roles in DNA synthesis.

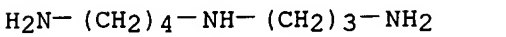
IT **71-44-3 124-20-9**
RL: BIOL (Biological study)
(DNA formation modulation in **regenerating liver** response to, after azacytidine pretreatment)

RN 71-44-3 CAPLUS

CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

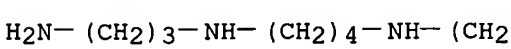


L10 ANSWER 41 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1980:601678 CAPLUS
DOCUMENT NUMBER: 93:201678
TITLE: Reversible inhibition of polyamine and DNA synthesis in regenerating rat liver
AUTHOR(S): Makhailovskii, V. O.; Tsyakalo, L. V.; Gulyi, M. F.
CORPORATE SOURCE: A. V. Palladin Inst. Biochem., Kiev, USSR
SOURCE: Byulleten Eksperimental'noi Biologii i Meditsiny (1980), 90(8), 165-7
CODEN: BEBMAE; ISSN: 0365-9615
DOCUMENT TYPE: Journal
LANGUAGE: Russian

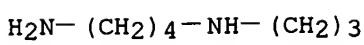
AB An injection of diaminohexane (I) at 100 mg/kg body weight into partially hepatectomized rats had little effect on the spermine and spermidine contents in the regenerating liver, whereas I levels reached high values and the putrescine levels were decreased significantly at 1 h and 2 h postinjection (p.i.). At 60 and 120 min p.i., the rate of incorporation of methionine-14C into spermidine was decreased by .apprx.40%, whereas after 240 min, this incorporation was normalized. However, spermine synthesis was insignificantly altered at 60-120 min but was decreased after 240 min by 30%. The putrescine synthesis was almost completely inhibited. The inhibitory effect of I on polyamine synthesis was reversible. The disruption of polyamine synthesis had little effect on protein synthesis in the regenerating liver and no effect on RNA synthesis. However, DNA synthesis was decreased >40% indicating an important role for polyamines in DNA synthesis. DNA synthesis was strongly correlated with the liver putrescine concentration and with the rate of spermidine synthesis.

IT **71-44-3 124-20-9**
RL: FORM (Formation, nonpreparative)
(formation of, by **liver** in **regeneration**, DNA formation in relation to)

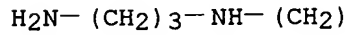
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



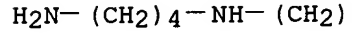
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 42 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1980:442832 CAPLUS
DOCUMENT NUMBER: 93:42832
TITLE: Dynamics of the elevation of hepatic polyamine levels after partial hepotectomy in the rat
AUTHOR(S): Moulinoux, J. P.; Chambon, Y.; Quemener, V.
CORPORATE SOURCE: Lab. Histol. Embryol., Univ. Rennes, Rennes, Fr.
SOURCE: Comptes Rendus des Seances de la Societe de Biologie et de Ses Filiales (1980), 174(1), 58-62
CODEN: CRSBAW; ISSN: 0037-9026
DOCUMENT TYPE: Journal
LANGUAGE: French
AB The levels of spermine, spermidine, and putrescine are determined in the regenerating rat liver until 4 days posthepatectomy. The putrescine content exhibits a marked increase during the 1st 6 h, then slowly drops and returns to its original value within 90 h. The concns. of spermidine and spermine both increase until 10 h; whereas the 1st concentration keeps on rising, the 2nd concentrate declines to control level within
24 h, but rises again after 72 h. This evolution may be interpreted in relation to cell divisions which mark early liver regeneration.
IT **71-44-3 124-20-9**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(of **liver**, in **regeneration**)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 43 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1978:471622 CAPLUS
DOCUMENT NUMBER: 89:71622
TITLE: Reversible inhibition of rat liver regeneration by 1,3-diamino-2-propanol, an inhibitor of ornithine decarboxylase
AUTHOR(S): Piik, Kirsti; Poso, Hannu; Janne, Juhani
CORPORATE SOURCE: Dep. Biochem., Univ. Helsinki, Helsinki, Finland
SOURCE: FEBS Letters (1978), 89(2), 307-12
CODEN: FEBLAL; ISSN: 0014-5793
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 1,3-Diamino-2-propanol (I) [616-29-5] (100 μmol/100 g, i.p.) given

to rats at the time of partial hepatectomy and subsequently given at 100 mM in the drinking water inhibited ornithine decarboxylase [9024-60-6] in **regenerating liver** and prevented the accumulation of spermidine [**124-20-9**] and spermine [**71-44-3**]. I at 75 mM totally prevented the increase in the weight of the remaining liver lobes. Withdrawal of the drug after 2 days seemed to initiate the regeneration process again.

IT **71-44-3 124-20-9**
RL: PRP (Properties)
(accumulation of, in **regenerating liver**, diaminopropanol effect on)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 44 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1978:149549 CAPLUS
DOCUMENT NUMBER: 88:149549
TITLE: Ornithine decarboxylase activity and the onset of deoxyribonucleic acid synthesis in regenerating liver
AUTHOR(S): McGowan, Joan A.; Fausto, Nelson
CORPORATE SOURCE: Div. Biol. Med., Brown Univ., Providence, RI, USA
SOURCE: Biochemical Journal (1978), 170(1), 123-7
CODEN: BIJOAK; ISSN: 0006-2936
DOCUMENT TYPE: Journal
LANGUAGE: English

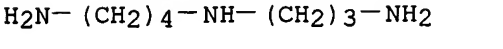
AB Although feeding rats on a low-protein diet for 3 days before partial hepatectomy caused a considerable delay in the DNA-formation response to this surgery compared with normally fed rats, it did not affect the timing of the 1st posthepatectomy peak in liver ornithine decarboxylase activity; it did delay the 2nd peak by a few h. Posthepatectomy liver polyamine concns. were similar in rats fed low- and normal-protein diets.

IT **71-44-3 124-20-9**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(of **liver**, in **regeneration**, DNA formation and ornithine decarboxylase in relation to)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

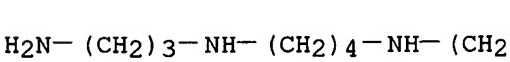


L10 ANSWER 45 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1978:19910 CAPLUS
DOCUMENT NUMBER: 88:19910
TITLE: Inhibition of prereplicative polyamine accumulation in regenerating rat liver
AUTHOR(S): Kallio, A.; Poso, H.; Janne, J.
CORPORATE SOURCE: Dep. Biochem., Univ. Helsinki, Helsinki, Finland
SOURCE: Biochimica et Biophysica Acta, Nucleic Acids and Protein Synthesis (1977), 479(3), 345-53
CODEN: BBNPAS; ISSN: 0005-2787
DOCUMENT TYPE: Journal
LANGUAGE: English

AB In rats, injections of 1,3-diaminopropane, an inhibitor of mammalian ornithine decarboxylase (EC 4.1.1.17) in vivo, during the 1st 10 h after partial hepatectomy markedly delayed the stimulation of liver DNA synthesis from thymidine-3H noramally occurring at the beginning of 2nd day of liver regeneration. Inhibition of ornithine decarboxylase by repeated injections (every 2 h) of diaminopropane for 10 h after partial hepatectomy abolished the enhancement in DNA synthesis at 20 h postoperatively, whereas shorter periods of postoperative diaminopropane treatment resulted in less complete prevention of the synthesis of DNA. The rate of liver DNA synthesis in vivo from thymidine-3H showed a highly significant pos. correlation with the concentration of tissue spermidine but not with that of putrescine or spermine. It was also possible to prevent the accumulation of spermidine and to depress liver DNA synthesis at 24 h postoperatively by starting the treatment with diaminopropane after varying lag periods following partial hepatectomy. Treatment with diaminopropane started as late as 12 h after partial hepatectomy still prevented any accumulation of liver spermidine and resulted in a profound inhibition (.apprx.85%) of DNA synthesis at 24 h postoperatively. The inhibition of DNA synthesis was gradually subsiding when the commencement of the amine treatment was moved farther from the time of the operation. Stimulation of polyamine biosynthesis during the prereplicative phase of liver regenreation may be a requirement for optimal stimulation of DNA synthesis occurring at later times of the regenerative process.

IT **71-44-3 124-20-9**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(of **liver**, in **regeneration**, DNA formation in relation to)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 46 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1977:165905 CAPLUS
DOCUMENT NUMBER: 86:165905
TITLE: Specific inhibition of the synthesis of putrescine and spermidine by 1,3-diaminopropane in rat liver in vivo
AUTHOR(S): Poso, H.; Kallio, A.; Scalabrino, G.; Janne, J.
CORPORATE SOURCE: Dep. Biochem., Univ. Helsinki, Helsinki, Finland
SOURCE: Biochimica et Biophysica Acta, General Subjects (1977), 497(1), 288-97
CODEN: BBGSB3; ISSN: 0304-4165
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Chronic administration of 1,3-diaminopropane [109-76-2], a compound inhibiting mammalian ornithine decarboxylase (EC 4.1.1.17) [9024-60-6] in vivo, effectively prevented the large increases in the concentration of putrescine [110-60-1] that normally occur during rat **liver regeneration**. Repeated injections of diaminopropane depressed by >85% ornithine decarboxylase activity in rat kidney. Administration of diaminopropane 60 min before partial hepatectomy only marginally inhibited ornithine decarboxylase activity at 4 h after the operation. However, when the compound was given at the time of the operation (4 h before death), or any time thereafter, it virtually abolished the enhancement in ornithine decarboxylase activity in the **regenerating** rat **liver** remnant. An injection of diaminopropane given 30-60 min after operation, but not earlier or later, depressed S-adenosyl-L-methionine decarboxylase (EC 4.1.1.50) [9036-20-8] activity 4 h after partial hepatectomy. Diaminopropane likewise inhibited ornithine decarboxylase activity during later periods of **liver regeneration**. In contrast to early regeneration, a total inhibition of the enzyme activity was only achieved when the injection was given not earlier than 2-3 h before the death of the animals. Diaminopropane also exerted an acute inhibitory effect on adenosylmethionine decarboxylase activity in 28-h **regenerating liver** whereas it invariably enhanced the activity of tyrosine aminotransferase (EC 2.6.1.5) [9014-55-5]. Treatment of the rats with diaminopropane entirely abolished the stimulation of spermidine [**124-20-9**] synthesis in vivo from methionine-14C 4 h after partial hepatectomy or after administration of porcine growth hormone. Apparently, diaminopropane can be used to elucidate the regulatory mechanism involved in the synthesis of spermidine beyond the ornithine decarboxylase step.

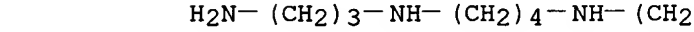
L10 ANSWER 47 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1977:118458 CAPLUS
DOCUMENT NUMBER: 86:118458
TITLE: Regulation of ornithine decarboxylase by diamines in regenerating rat liver
AUTHOR(S): Kallio, Arja; Poso, Hannu; Scalabrino, Giuseppe; Janne, Juhani
CORPORATE SOURCE: Dep. Biochem., Univ. Helsinki, Helsinki, Finland
SOURCE: FEBS Letters (1977), 73(2), 229-34

CODEN: FEBLAL; ISSN: 0014-5793
DOCUMENT TYPE: Journal
LANGUAGE: English

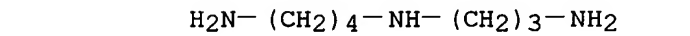
AB The activity of ornithine decarboxylase was significantly stimulated in 4-h regenerating rat livers after partial hepatectomy. The enzyme stimulation in regenerating livers was prevented by diaminopropane (I) or cycloheximide (II) injection at the time of operation or 3 h after the operation; α-amanitin (III) injection at the time of operation also prevented the enzyme stimulation, but was not effective when injected 3 h after the operation. The activity of the hepatic adenosylmethionine decarboxylase was not stimulated by partial hepatectomy. The activity was inhibited by I and II treatment at the time of operation, it was inhibited by I and III treatment 3 h after the operation. The concentration of hepatic putrescine significantly decreased in the regenerating tissue after treatment with I and II at the time of operation and 3 h after the operation; III was effective only when injected at the time of operation. In contrast, the concns. of spermidine and spermine were not significantly affected by these treatments. Apparently, ornithine decarboxylase is controlled by mechanisms involving a set of different regulatory sites and(or) levels in the regenerating rat liver.

IT **71-44-3 124-20-9**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(of **liver**, in **regeneration**, diamine effect on)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



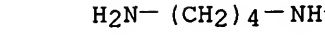
L10 ANSWER 48 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1977:14380 CAPLUS
DOCUMENT NUMBER: 86:14380
TITLE: Inhibition of polyamine accumulation and deoxyribonucleic acid synthesis in regenerating rat liver
AUTHOR(S): Poesoe, Hannu; Jaenne, Juhani
CORPORATE SOURCE: Dep. Biochem., Univ. Helsinki, Helsinki, Finland
SOURCE: Biochemical Journal (1976), 158(2), 485-8
CODEN: BIJOAK; ISSN: 0264-6021
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Repeated injections of 1,3-diaminopropane into partially hepatectomized rats caused a repression-type inhibition of liver ornithine decarboxylase (EC 4.1.1.17) and totally prevented the increases in liver putrescine and spermidine concns. normally observed after partial hepatectomy. The inhibition of polyamine formation was accompanied by an .apprx.80% decrease in DNA formation in the

regenerating liver without any changes in the formation of RNA and total liver protein.

IT **124-20-9**
RL: FORM (Formation, nonpreparative)
(formation of, by **liver** in **regeneration**, DNA formation in relation to)

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 49 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1976:491332 CAPLUS
DOCUMENT NUMBER: 85:91332
TITLE: Stimulation of ornithine decarboxylase synthesis and its control by polyamines in regenerating rat liver and cultured rat hepatoma cells
AUTHOR(S): Canellakis, Zoe N.; Theoharides, Theoharis C.
CORPORATE SOURCE: Sch. Med., Yale Univ., New Haven, CT, USA
SOURCE: Journal of Biological Chemistry (1976), 251(14), 4436-41
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Ornithine decarboxylase was induced in log phase hepatoma cells grown in suspension culture. Induction with N6,O2'-dibutyryl cyclic AMP produced a 4-fold increase in enzyme activity by 3 hr which was followed by a return to base levels by 6 hr. Induction with dexamethasone, a potent synthetic glucocorticoid, exhibited a slow steady rate of increase in enzyme activity, reaching a plateau level of .apprx.5-6-fold stimulation by .apprx.12-hr. Induced cell and regenerating rat liver ornithine decarboxylase were shown to be indistinguishable by titration with antibody monospecific to the latter and by heat stability. L-leucine-14C incorporation into immunoprecipitable enzyme protein after induction in vitro or partial hepatectomy showed an increase which, when coupled with the increase in enzymic activity, indicated de novo synthesis of enzyme protein. Physiol. concns. of the naturally occurring polyamines, spermidine and spermine, abolished cyclic AMP induction, whereas they had no effect on dexamethasone induction. Both inductions were abolished by cycloheximide. In contrast, inhibition by actinomycin D was complete for dexamethasone induction and only partial with respect to cyclic AMP induction. The different time pattern of induction seen with cyclic AMP and dexamethasone, the partial inhibition of the cyclic AMP induction seen with actinomycin D, as well as the absence of inhibition of the dexamethasone induction by polyamines indicated that these inducers might affect different aspects of the control of the same enzyme.

IT **71-44-3 124-20-9**
RL: BIOL (Biological study)
(ornithine decarboxylase formation by hepatoma culture and **liver** in **regeneration** in response to)

RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 50 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1976:174574 CAPLUS
DOCUMENT NUMBER: 84:174574
TITLE: Inhibition of ornithine decarboxylase activity and spermidine accumulation in regenerating rat liver
AUTHOR(S): Poso, H.; Janne, J.
CORPORATE SOURCE: Dep. Biochem., Univ. Helsinki, Helsinki, Finland
SOURCE: Biochemical and Biophysical Research Communications (1976), 69(4), 885-92
CODEN: BBRCA9; ISSN: 0006-291X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 1,3-Diaminopropane [109-76-2] (75 μmoles/100 g, i.p.) was more effective than its analog, putrescine [110-60-1] (75 μmoles/100 g, i.p.) in decreasing ornithine decarboxylase (EC 4.1.1.17) [9024-60-6] activity in the **regenerating** rat **liver**. Repeated injections of diaminopropane prevented increases in hepatic spermidine [**124-20-9**] concentration normally observed in response to partial hepatectomy. Diaminopropane did not depress adenosylmethionine decarboxylase (EC 4.1.1.50) [9036-20-8] activity in the **regenerating liver** and did not affect spermidine synthase (EC 2.5.1.16) [37277-82-0] activity in vitro.
IT **124-20-9**
RL: PRP (Properties)
(of **liver** during **regeneration**, diaminopropane effect on)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 51 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1976:15428 CAPLUS
DOCUMENT NUMBER: 84:15428
TITLE: Accumulation and synthesis of polyamines during experimental liver regeneration
AUTHOR(S): Janne, J.; Holtta, E.; Hannonen, P.
CORPORATE SOURCE: Dep. Med. Chem., Univ. Helsinki, Helsinki, Finland
SOURCE: Liver Regener. Exp. Inj., Workshop, 3rd (1975), Meeting Date 1973, 230-40. Editor(s): Lesch, Rainer; Reutter, Werner. Stratton: New York, N. Y.
CODEN: 31UHAZ
DOCUMENT TYPE: Conference

LANGUAGE: English

AB Shortly after a single i.p. injection of CCl4 there was an immense stimulation of liver ornithine decarboxylase activity and a 10-fold accumulation of liver putrescine. At the time of maximal putrescine accumulation there was a striking drop in the concentration of liver spermidine. The concentration of spermidine rose later, exceeding the control values at 24 hr after the injection of the poison. When radioactive spermidine was injected in vivo at the time of maximal putrescine accumulation, there was a remarkable conversion of the labeled spermidine to liver putrescine. In control animals there was hardly any conversion of spermidine to putrescine in vivo. In addition to CCl4 partial hepatectomy, growth hormone and thioacetamide also caused an increased conversion of exogenous spermidine to liver putrescine.

IT **124-20-9**
RL: BIOL (Biological study)
(of **liver**, in **liver regeneration**)

RN 124-20-9 CAPLUS

CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 52 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1975:55164 CAPLUS

DOCUMENT NUMBER: 82:55164

TITLE: Putrescine and polyamines in relation to nucleic acids in mouse liver after partial hepatectomy

AUTHOR(S): Heby, O.; Lewan, L.

CORPORATE SOURCE: Inst. Zooophysiol., Univ. Lund, Lund, Swed.

SOURCE: Virchows Archiv B: Cell Pathology Including Molecular Pathology (1971), 8(1), 58-66
CODEN: VAAZA2; ISSN: 0340-6075

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Changes in polyamine and nucleic acid concns. were studied during the regeneration of mouse liver. Partial hepatectomy caused an early accumulation of putrescine. There was a rapid increase in spermidine concentration parallel to an increase in RNA concentration and concomitant with a decrease in spermine concentration Only moderate changes in DNA concentration were found during the growth period. The results are discussed in relation to transcription and replication during the restoration of mouse liver after partial hepatectomy.

IT **71-44-3 124-20-9**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(of **liver**, in **regeneration**, nucleic acids in relation to)

RN 71-44-3 CAPLUS

CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 53 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1975:54939 CAPLUS
DOCUMENT NUMBER: 82:54939
TITLE: Regulation of ornithine decarboxylase activity by putrescine and spermidine in rat liver
AUTHOR(S): Janne, J.; Holtta, E.
CORPORATE SOURCE: Dep. Biochem., Univ. Helsinki, Helsinki, Finland
SOURCE: Biochemical and Biophysical Research Communications (1974), 61(2), 449-56
CODEN: BBRCA9; ISSN: 0006-291X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The marked enhancement of the activity of ornithine decarboxylase (EC 4.1.1.17) in rat liver at 4 hr following partial hepatectomy or the treatment with growth hormone was almost completely prevented by i.p. administration of putrescine. A single injection of putrescine to partially hepatectomized rats caused a markedly rapid decline in the activity of liver ornithine decarboxylase with an apparent half-life of only 30 min, which is almost as rapid as the decay of the enzyme activity after the administration of inhibitors of protein synthesis. Under similar conditions putrescine did not have any inhibitory effect on the activity of adenosylmethionine decarboxylase (EC 4.1.1.50) or tyrosine aminotransferase (EC 2.6.1.5). Spermidine given at the time of partial hepatectomy or 2 hr later also markedly inhibited ornithine decarboxylase activity at 4 hr after the operation and, in addition, caused a slight inhibition of the activity of adenosylmethionine decarboxylase.
IT **124-20-9**
RL: BIOL (Biological study)
(ornithine decarboxylase formation inhibition by, by **liver** in **regeneration**)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 54 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1973:93119 CAPLUS
DOCUMENT NUMBER: 78:93119
TITLE: RNA metabolism in isolated perfused normal and regenerating livers. Polyamine effects
AUTHOR(S): Fausto, Nelson
CORPORATE SOURCE: Div. Biol. Med. Sci., Brown Univ., Providence, RI, USA
SOURCE: Biochimica et Biophysica Acta, Nucleic Acids and Protein Synthesis (1972), 281(4), 543-53
CODEN: BBNPAS; ISSN: 0005-2787

DOCUMENT TYPE: Journal
LANGUAGE: English
AB The labeling profiles (from orotate-14C) of nuclear and cytoplasmic RNA from isolated perfused rat livers differed from the profiles obtained in expts. in vivo. In isolated livers rapidly sedimenting RNA species in the nucleus were not labeled and no distinct peak of radioactivity was found in 28 S cytoplasmic RNA. Addition of spermidine [**124-20-9**] to the perfusate increased the specific activity of nuclear RNA of perfused livers and enhanced the labeling of fast sedimenting RNA species in isolated perfused **regenerating livers**. These changes were not reflected in an increase in the labeling of 28 S cytoplasmic RNA. Continuous infusion or hourly addition of large amts. of amino acids was necessary to maintain the integrity of the polyribosomes of isolated perfused livers.
IT **124-20-9**
RL: PRP (Properties)
(RNA formation by **liver** in response to, in **regeneration**)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 55 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1971:507332 CAPLUS
DOCUMENT NUMBER: 75:107332
TITLE: Polyamine metabolism in mouse liver after partial hepatectomy
AUTHOR(S): Russell, Diane H.; McVicker, Thomas A.
CORPORATE SOURCE: Baltimore Cancer Res. Cent., Natl. Cancer Inst., Baltimore, MD, USA
SOURCE: Biochimica et Biophysica Acta, General Subjects (1971), 244(1), 85-93
CODEN: BBGSB3; ISSN: 0304-4165
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The synthesis and accumulation of the polyamines (putrescine, spermidine, and spermine) was studied in regenerating mouse liver. Also, the metabolism of spermidine was studied in normal and regenerating mouse liver after 14C labeling the endogenous pool of spermidine with its precursor, putrescine. Ornithine decarboxylase (EC 4.1.1.17) activity increased over 4-fold within 36 hr of hepatectomy and was still elevated at 96 hr posthepatectomy. This correlated well with the increased putrescine content of regenerating mouse liver (increased pool within 24 hr and doubled by 72 hr). Spermidine synthesis (S-adenosyl-L-methionine decarboxylase activity) reached its maximum within 48 hr after partial hepatectomy and then declined slowly. Spermidine content increased 50% within 24 hr and was 3-fold above controls within 96 hr. Spermine content decreased to a low (70% of controls) within 72 hr and then gradually returned to normal. Maximum RNA content was detected within 72 hr, at the time of the maximum putrescine concentration Thereafter, the RNA content rapidly returned to the control level (by 96 hr). The normal mouse liver appeared to have a fast and a slow metabolic pool of spermidine (half lives of 1.5 and 10 days, resp.), whereas regenerating mouse liver had only a fast pool (half life of 2 days).

IT **71-44-3 124-20-9**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(metabolism of, by **liver** in **regeneration**)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 56 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1971:51243 CAPLUS
DOCUMENT NUMBER: 74:51243
TITLE: Putrescine and spermidine biosynthesis in growth and development
AUTHOR(S): Russell, Diane Haddock
CORPORATE SOURCE: Natl. Cancer Inst., Baltimore Cancer Res. Cent., Baltimore, MD, USA
SOURCE: Annals of the New York Academy of Sciences (1970), 171(Art. 3), 772-82
CODEN: ANYAA9; ISSN: 0077-8923
DOCUMENT TYPE: Journal
LANGUAGE: English
AB S-Adenosyl-L-methionine decarboxylase (SAMD) and ornithine decarboxylase (ODC) activities were measured to evaluate their comparable responses in regenerating rat liver and embryonic systems. A connection is indicated between putrescine synthesis and activation of RNA polymerase. In an anucleolate mutant of xenopus laevis (toad) where ribosomal RNA is not synthesized, both ODC and SAMD activities are low or absent. The mutant is not able to accumulate spermidine and ribosomal RNA. In developing rat embryos SAMD activity increased and reached maximal levels before ODC. Increased putrescene and spermidine are detectable in the developing fetal rats and correspond to the period of enhanced enzymic activity. Studies on spermidine synthesis in regenerating rat liver indicate that SAMD activity is responsible for maintaining a constant pool of spermidine while ODC is the rate limiting step in unstressed liver. SAMD activity increases in normal rat liver after growth hormone administration, but to a lessor extent and at a later time than the changes seen in ODC activity.
IT **124-20-9**
RL: FORM (Formation, nonpreparative)
(formation of, by embryos and **regenerating liver**)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

L10 ANSWER 57 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1966:467811 CAPLUS
DOCUMENT NUMBER: 65:67811
ORIGINAL REFERENCE NO.: 65:12663g-h,12664a-b
TITLE: The biosynthesis of polyamines in regenerating rat liver
AUTHOR(S): Janne, Juhani; Raina, Aarne
CORPORATE SOURCE: Univ. Helsinki
SOURCE: Acta Chemica Scandinavica (1966), 20(4), 1174-6
CODEN: ACHSE7; ISSN: 0904-213X
DOCUMENT TYPE: Journal
LANGUAGE: English

AB cf. CA 62, 6916f. A detailed study was made of the incorporation of putrescine (I) into spermidine (II) during rat liver regeneration, the possible role of DL-arginine (III) as a precursor of polyamines, and the interconversion between II and spermine (IV). Partially heptatectomized female albino rats were used along with sham-operated (laparotomy only) rats as controls. I-1,4-14C (2 μc.) was administered intraperitoneally 1 hr. before analysis to partially hepatectomized rats; the controls were sham-operated 16 hrs. before injection. I-1,4-14C was incorporated into labeled II, but in none of the hepatectomized groups did the sp. activity exceed that of the controls. When both the amount of I-1,4-14C administered and the incorporation time were varied, again no great differences were found between the sham-operated and hepatectomized groups. Although not conclusive, these results suggested that another source or sources for the C4 chain of II and IV would be stimulated during liver regeneration. No radioactivity was found in the polyamines after administration of 10 μc. uniformly labeled glutamic-14C acid to a hepatectomized rat. In contrast, after treatment with labeled III, the II isolated from both normal and regenerating liver was labeled. Analysis 6 hrs. after injection of 10 μc. III-5-14C 24 hrs. postoperatively revealed the following sp. activities for liver II: sham-operated 1410 counts per min. (c.p.m.)/micromole and hepatectomized 4070 c.p.m./micromole; some activity, although very low, was found in the IV fraction. It was concluded that III is incorporated into liver polyamines, and that its incorporation is increased during liver regeneration. The incorporation of II-14C into IV was shown in regenerating rat liver. After injection of 5 μc. II-14C 22 hrs. postoperatively, the radioactivity of liver total II decreased from 14 + 105 c.p.m, at 1 day after administration to 4.4 + 105 c.p.m. at 5 days, while that of liver total IV simultaneously increased from 1.2 + 105 to 3.3 + 105 c.p.m. Five days after injection the sp. activity of IV exceeded that of II.

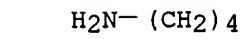
IT **124-20-9**, 1,4-Butanediamine, N-(3-aminopropyl)-
(formation of, by **liver** in **regeneration**, spermine conversion and)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

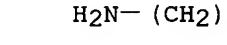
L10 ANSWER 58 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1966:450402 CAPLUS
DOCUMENT NUMBER: 65:50402
ORIGINAL REFERENCE NO.: 65:9455g-h,9456a
TITLE: Stimulation of polyamine synthesis in relation to nucleic acids in regenerating rat liver
AUTHOR(S): Raina, A.; Janne, J.; Siimes, M.
CORPORATE SOURCE: Univ. Helsinki
SOURCE: Biochimica et Biophysica Acta, Nucleic Acids and Protein Synthesis (1966), 123(1), 197-201
CODEN: BBNPAS; ISSN: 0005-2787
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The effect of partial hepatectomy on the liver polyamines and nucleic acids was studied in the rat. Partial hepatectomy causes an early stimulation of spermidine synthesis, as indicated by the marked increase in the incorporation of methionine-14C into this polyamine, as early as 4-8 hrs. after operation. At the 16th hr. the specific activity of spermidine was about 10-fold that of the sham-operated controls. The total spermidine content of the liver was already significantly elevated at 16 hrs. and at 64 hrs. it was 3.6-fold that of the controls. The specific activity of spermine did not increase until 16-20 hrs. and the total amount of spermine per liver not until 64 hrs. postoperatively. The total amount of liver RNA was significantly increased at 32 hrs. and that of DNA at 64 hrs. The polyamine N to RNA phosphate ratio remained quite constant during liver regeneration. The present observations are discussed on the basis of the hypothesis that tissue polyamines may be essential as physiol. stabilizers of nucleic acids, especially RNA. 15 references.

IT **124-20-9**, 1,4-Butanediamine, N-(3-aminopropyl)-
(formation of, by **liver** in **regeneration**)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



IT **71-44-3**, 1,4-Butanediamine, N,N'-bis(3-aminopropyl)-
(formation of, in **liver** in **regeneration**)
RN 71-44-3 CAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L10 ANSWER 59 OF 59 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1965:456940 CAPLUS
DOCUMENT NUMBER: 63:56940
ORIGINAL REFERENCE NO.: 63:10426g-h
TITLE: Spermidine in regenerating liver: relation to rapid synthesis of ribonucleic acid
AUTHOR(S): Dykstra, William G., Jr.; Herbst, Edward J.
CORPORATE SOURCE: Univ. of New Hampshire, Durham

SOURCE: Science (Washington, DC, United States) (1965), 149(3682), 428-9
CODEN: SCIEAS; ISSN: 0036-8075
DOCUMENT TYPE: Journal
LANGUAGE: English

AB There was a pronounced increase in the spermidine (I) concentration in regenerating livers of partially hepatectomized rats compared with control tissue. The pattern of I accumulation in regenerating liver was similar to RNA increments. The concentration of spermine was unchanged or slightly less than in the normal liver. The rate of formation of I increased sharply during the very early regeneration process after partial hepatectomy. The uptake of putrescine-2,3-3H by regenerating liver was 3 to 5 times that in normal liver. The rate of conversion of putrescine (II) to I was doubled. II uptake and I biosynthesis was elevated for 24 hrs. I-3H uptake had a time course pattern similar to II-3H. The rate of I-3H uptake by the liver 2 hrs. after partial hepatectomy was twice that of unoperated controls. The uptake in the regenerating livers was 2 to 2.5 times the rate of controls after partial hepatectomy.

IT **124-20-9,** 1,4-Butanediamine, N-(3-aminopropyl)-
(formation of, by **liver** in **regeneration,**
puturescine in)
RN 124-20-9 CAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

FILE 'REGISTRY' ENTERED AT 15:15:00 ON 29 NOV 2005
L11 2 SEA FILE=REGISTRY ABB=ON PLU=ON (124-20-9/BI OR 71-44-3/BI)

FILE 'CAOLD' ENTERED AT 15:15:18 ON 29 NOV 2005

FILE COVERS 1907-1966
FILE LAST UPDATED: 01 May 1997 (19970501/UP)

This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

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This file supports REG1stRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

L12 141 L11

=> d scan

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN

TI mol. action of mutagenic and carcinogenic agents-acridine mutagens and deoxyribonucleic acid structure
IT 56-93-9 57-92-1 **71-44-3** 75-57-0 83-89-6
92-62-6 **124-20-9** 225-11-6 229-87-8 442-16-0
518-67-2 832-68-8 947-63-7 948-43-6 951-01-9 951-80-4
963-36-0 963-89-3 963-97-3 966-62-1 1003-40-3 1031-76-1
2378-76-9

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):49

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI evidence for the presence of spermidine and spermine in the nuclei of rat liver and calf thymus gland
IT **71-44-3** **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI antimycotic effect of spermine
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI lipoprotein lipase activity in normal human adipose tissue and its absence in human lipomas
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI characteristics of α-amylase formation by Bacillus subtilis
IT **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI polyamines and ribosome structure
IT **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI infraspecific variation in wax on leaf surfaces
TI occurrence of polyamines in the germs of cereals
IT **71-44-3** **124-20-9** 462-94-2

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI putrescine and spermidine as growth-promoting substances for the saw-toothed grain beetle
IT **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI effect of polymethylenepolyamines on the growth of transplantable cancer
IT **71-44-3** **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI effect of di- and polyamines on the thermal transition of synthetic polyribonucleotides
IT **71-44-3** **124-20-9** 1463-10-1

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI presence of polyamines in bacterial viruses
IT **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI biosynthesis of spermidine and spermine
IT **124-20-9**

Searcher : Shears 571-272-2528

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI mode of action of Prymnesium parvum ichthyotoxin
IT 56-18-8 57-09-0 **71-44-3** 646-19-5 646-24-2
646-25-3

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI stabilizing effect of spermine and related polyamines and bacterial chloroplasts
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI spermidine and spermine in rat tissues at different ages
IT **71-44-3** **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI fidelity in the translation of messenger ribonucleic acids in mammalian subcellular systems
IT **71-44-3** **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI stabilization of Baccillus subtilis transforming principle by spermine
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI occurrence of spermine in serums of cancer-bearing individuals
TI thymidine kinases in a series of transplantable rat hepatomas
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI amides of vegetable origin - (VIII) constitution and configuration of the sanshools
IT **124-20-9** 13430-38-1 13431-24-8 34450-15-2 68125-01-9
75235-38-0 102461-89-2

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI Zn metabolism in patients with malignant tumors-amts. of Zn in tumor tissue, blood, and urine
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI changes in polyamine content of rat liver following hypophysectomy and treatment with growth hormone
IT **71-44-3** **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI degradation of natural polyamines and diamines by bacteria
IT **71-44-3** **124-20-9** 306-60-5

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI human plasma monoamine oxidase - (I) purification and identification, (II) kinetic studies
IT 54-04-6 60-23-1 97-31-4 106-60-5 110-58-7 111-26-2
111-68-2 111-86-4 **124-20-9** 363-36-0 370-81-0
373-44-4 608-07-1 700-65-2 1071-23-4 2016-57-1 2134-61-4
2835-06-5 90533-88-3

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI inhibition of the synthesis of β-galactosidase in Escherichia

coli by 2-nitrophenyl-β-D-fucoside
IT **71-44-3** 83-89-6 452-06-2 1154-94-5

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI venom of Trimeresurus mucrosquamatus - (II) zone electrophoresis of, (III) dialyzable substances in the venom
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI composition of the low-mol.-weight fraction of Bulgarian viper venom
TI protein content in blood plasma of rainbow trout
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI determination of spermine with platinic iodide
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI stabilizing effect of spermine and related amines on mitochondria and protoplasts
IT **71-44-3** **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI acrolein - (II) fluorescences produced by acrolein, spermine, and related compds. with resorcinol plus calf serum
IT 56-18-8 **71-44-3** 78-96-6 107-11-9 111-68-2 **124-20-9** 869-29-4 3054-95-3

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI preparation of photographic Ag halide synthetic emulsions - (III) sensitization of completely ammoniacal Ag halide poly(vinyl alc.) emulsions
IT **71-44-3** 6806-81-1

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI spermine inhibition of polypeptide synthesis in a subcellular system derived from the L1210 mouse ascites leukemia
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI biochemistry of polyamines in relation to cell multiplication
TI ribonucleic acid synthesis in nucleolus
IT **71-44-3** **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI isolation and crystallization of 4-aminobutyric acid choline ester and of spermidine and putrescine from warm-blooded brains
IT **124-20-9** 62594-34-7 93480-78-5

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI aliphatic and aromatic amines of cat brain
IT **71-44-3** 78-96-6 97-31-4 **124-20-9** 501-75-7

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI resistance of ribonucleic acid to thermal denaturation in the presence of polyamines
IT **71-44-3** 306-67-2 334-50-9 10563-26-5 13493-16-8 13493-17-9

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI pace-setting phenomenon in derepressed enzyme formation
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI determination of K in various fish products for radioactivity determination
IT 51-45-6 54-85-3 58-27-5 58-74-2 59-30-3 59-46-1
97-59-6 **124-20-9** 492-27-3 501-30-4 504-29-0
547-91-1 949-67-7

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI responsibility of spermine for the antibacterial action of human semen
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI biochem. analysis of components of human semen - (I) paper chromatography of spermine and choline in human semen
TI chromatography on starch columns
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI studies on the enzymic metabolism of spermidine by Escherichia coli extract
IT **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI carotene and porphyrin-constitution, action and possible biosynthesis - (II)
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI effects of x-radiation on lactate metabolism of mammalian cells
IT **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI stimulation of polyamine synthesis in relation to nucleic acids in regenerating rat liver
IT **71-44-3** **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI infectivity and inactivation of nucleic acid prepns. from tobacco mosaic virus
IT **71-44-3** 1074-12-0

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI polyamines and nucleic acids during development of the chick embryo
IT 65-46-3 **71-44-3** 86-01-1 **124-20-9**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI aliphatic amines and a growth factor of coconut milk as stimulating cellular proliferation of Jerusalem artichoke
IT **124-20-9** 462-94-2

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI effect of intracellular spermine on ribosomes of Escherichia coli
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN

TI aliphatic polyamines and their biol. role
TI possible role of brain dopamine
IT 51-61-6 **71-44-3** **124-20-9** 462-94-2

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI spermine in blood serum of pregnant cows
IT **71-44-3**

L12 141 ANSWERS CAOLD COPYRIGHT 2005 ACS on STN
TI biol. investigations of a nucleic acid analog-dependent herpes virus
IT 50-90-8 59-14-3 **71-44-3** 145-63-1

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

FILE 'USPATFULL' ENTERED AT 15:16:06 ON 29 NOV 2005
CA INDEXING COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 29 Nov 2005 (20051129/PD)
FILE LAST UPDATED: 29 Nov 2005 (20051129/ED)
HIGHEST GRANTED PATENT NUMBER: US6971121
HIGHEST APPLICATION PUBLICATION NUMBER: US2005262612
CA INDEXING IS CURRENT THROUGH 29 Nov 2005 (20051129/UPCA)
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 29 Nov 2005 (20051129/PD)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Oct 2005
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Oct 2005

>>> USPAT2 is now available. USPATFULL contains full text of the <<<
>>> original, i.e., the earliest published granted patents or <<<
>>> applications. USPAT2 contains full text of the latest US <<<
>>> publications, starting in 2001, for the inventions covered in <<<
>>> USPATFULL. A USPATFULL record contains not only the original <<<
>>> published document but also a list of any subsequent <<<
>>> publications. The publication number, patent kind code, and <<<
>>> publication date for all the US publications for an invention <<<
>>> are displayed in the PI (Patent Information) field of USPATFULL <<<
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>>> /PK, etc. <<<

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>>> through the new cluster USPATALL. Type FILE USPATALL to <<<
>>> enter this cluster. <<<
>>> <<<
>>> Use USPATALL when searching terms such as patent assignees, <<<
>>> classifications, or claims, that may potentially change from <<<
>>> the earliest to the latest publication. <<<

This file contains CAS Registry Numbers for easy and accurate
substance identification.

L13 516 S L11

L15 4 SEA ABB=ON PLU=ON L13 AND ((LIVER OR HEPATIC)(5A)(GENERAT
? OR REGENERAT?) OR (PANCREATIT? OR (PANCREAS OR PANCREAT?)
(3A)(DISEAS? OR DISORDER))(5A)(TREAT? OR THERAP? OR
PREVENT?))

L15 ANSWER 1 OF 4 USPATFULL on STN
ACCESSION NUMBER: 2004:286909 USPATFULL
TITLE: Drug delivery from rapid gelling polymer

composition
INVENTOR(S): Gravett, David M., Vancouver, CANADA
Takacs-Cox, Aniko, North Vancouver, CANADA
Toleikis, Philip M., Vancouver, CANADA
Maiti, Arpita, Vancouver, CANADA
Embree, Leanne, Squamish, CANADA
PATENT ASSIGNEE(S): Angiotech International AG, Zug, SWITZERLAND, 6304 (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2004225077	A1	20041111	
APPLICATION INFO.:	US 2003-749117	A1	20031230	(10)

	NUMBER	DATE	
PRIORITY INFORMATION:	US 2003-440875P	20030117	(60)
	US 2002-437471P	20021230	(60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: SEED INTELLECTUAL PROPERTY LAW GROUP PLLC, 701 FIFTH AVENYUE, SUITE 6300, SEATTLE, WA, 98104-7092
NUMBER OF CLAIMS: 126
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 8 Drawing Page(s)
LINE COUNT: 5102
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Compositions are disclosed that afford drug delivery from two-part polymer compositions that rapidly form covalent linkages when mixed together. Such compositions are particularly well suited for use in a variety of tissue related applications when rapid adhesion to the tissue and gel formation is desired along with drug delivery. For example, the compositions are useful as tissue sealants, in promoting hemostasis, in effecting tissue adhesion, in providing tissue augmentation, and in the prevention of surgical adhesions.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L15 ANSWER 2 OF 4 USPATFULL on STN
ACCESSION NUMBER: 2004:233894 USPATFULL
TITLE: Methods for the **treatment** and **prevention** of **pancreatitis** and for induction of **liver regeneration**
INVENTOR(S): Rasanen, Tiina-Liisa, Syvanniemi, FINLAND
Alhonen, Leena, Vuorela, FINLAND
Sinervirta, Riitta, Syvanniemi, FINLAND
Keinanen, Tuomo, Kuopio, FINLAND
Herzig, Karl-Heinz, Kuopio, FINLAND
Khomutov, Alex Radii, Moscow, RUSSIAN FEDERATION
Vepsalainen, Jouko, Kuopio, FINLAND
Janne, Juhani, Vuorela, FINLAND

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2004180968	A1	20040916	
APPLICATION INFO.:	US 2003-731626	A1	20031209	(10)

	NUMBER	DATE

PRIORITY INFORMATION:	US 2002-431958P 20021209 (60)
DOCUMENT TYPE:	Utility
FILE SEGMENT:	APPLICATION
LEGAL REPRESENTATIVE:	WOODCOCK WASHBURN LLP, ONE LIBERTY PLACE, 46TH FLOOR, 1650 MARKET STREET, PHILADELPHIA, PA, 19103
NUMBER OF CLAIMS:	30
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	10 Drawing Page(s)
LINE COUNT:	2039

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Novel methods for treating and **preventing** acute and/or chronic **pancreatitis** are described. Additionally, novel methods for inducing **liver regeneration** are described. The methods may comprise administering to a patient an effective amount of a metabolically stable analogue of spermidine and/or spermine. Preferred compounds for use in the methods may include 1-methylspermidine, 1-methylspermine and 1,12-dimethylspermine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L15 ANSWER 3 OF 4 USPATFULL on STN

ACCESSION NUMBER:	2003:296990 USPATFULL
TITLE:	Polyamine analogues as therapeutic and diagnostic agents
INVENTOR(S):	Vermeulin, Nicolaas M. J., 19334 - 196th Ave., NE., Woodinville, WA, United States 98072 O'Day, Christine L., 4404-B 216th St., SW., Mountlake Terrace, WA, United States 98043 Webb, Heather K., 5705 Seaview Ave., NW., Seattle, WA, United States 98107 Burns, Mark R., 226 NW. 184th St., Shoreline, WA, United States 98177 Bergstrom, Donald E., 3416 Hamilton St., West Lafayette, IN, United States 47906

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6646149	B1	20031111
APPLICATION INFO.:	US 2000-584175		20000531 (9)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1999-396523, filed on 15 Sep 1999 Continuation-in-part of Ser. No. US 341400, now patented, Pat. No. US 6172261		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-85538P	19980515 (60)
	US 1997-65728P	19971114 (60)
	US 1997-52586P	19970715 (60)

DOCUMENT TYPE:	Utility
FILE SEGMENT:	GRANTED
PRIMARY EXAMINER:	Kumar, Shailendra
LEGAL REPRESENTATIVE:	Amernick, Burton A., Connolly Bove Lodge & Hutz, LLP
NUMBER OF CLAIMS:	28
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	59 Drawing Figure(s); 59 Drawing Page(s)
LINE COUNT:	2033

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Novel "bispolyamine" inhibitor compounds of polyamine transport are disclosed. These compounds are useful pharmaceutical agents for treating diseases where it is desired to inhibit polyamine transport or other polyamine binding proteins, for example cancer and post-angioplasty injury. These compounds display desirable activities both for diagnostic and research assays and therapy.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L15 ANSWER 4 OF 4 USPATFULL on STN

ACCESSION NUMBER:	2000:117775 USPATFULL		
TITLE:	Polyamine derivatives as radioprotective agents		
INVENTOR(S):	Edwards, Michael L., Cincinnati, OH, United States Snyder, Ronald D., Loveland, OH, United States		
PATENT ASSIGNEE(S):	Merrell Pharmaceuticals Inc., Bridgewater, NJ, United States (U.S. corporation)		
	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6114394		20000905
APPLICATION INFO.:	US 1997-949536		19971014 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 507368		
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Badio, Barbara		
LEGAL REPRESENTATIVE:	Gupta, Balaram		
NUMBER OF CLAIMS:	15		
EXEMPLARY CLAIM:	1		
LINE COUNT:	1348		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to polyamine derivatives of the formula RHN-(CH.sub.2).sub.m -NH-(CH.sub.2).sub.n -NHR wherein m is an integer from 2 to 4, n is an integer from 3 to 10 and R is C.sub.2 -C.sub.6 alkyl or --(CH.sub.2).sub.p -Ar wherein Ar is phenyl or naphthyl and p is an integer from 0 to 2; and the pharmaceutically acceptable addition salts thereof which are useful as radioprotective agents. It relates also to the use of polyamines of the formula RHN-(CH.sub.2).sub.m -NH-(CH.sub.2).sub.n -NH-(CH.sub.2).sub.m -NHR wherein m is an integer from 2 to 4, n is an integer from 3 to 10 and R is C.sub.2 -C.sub.6 alkyl or --(CH.sub.2).sub.p -Ar wherein Ar is phenyl or naphthyl and p is an integer from 0 to 2; and the pharmaceutically acceptable addition salts thereof as radioprotective agents.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

FILE 'MEDLINE' ENTERED AT 15:17:04 ON 29 NOV 2005

FILE 'BIOSIS' ENTERED AT 15:17:04 ON 29 NOV 2005
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FILE 'EMBASE' ENTERED AT 15:17:04 ON 29 NOV 2005
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L16 20734 S L11

L22 17 SEA ABB=ON PLU=ON L16 AND (((LIVER OR HEPATIC)(5A)(GENERAT? OR REGENERAT?))(S)(INDUCT? OR INDUCING OR INDUCE#) OR

(PANCREATIT? OR (PANCREAS OR PANCREAT?)(3A)(DISEAS? OR DISORDER))(5A)(TREAT? OR THERAP? OR PREVENT?))
L23 13 DUP REM L22 (4 DUPLICATES REMOVED)

L23 ANSWER 1 OF 13 MEDLINE on STN
ACCESSION NUMBER: 2005091962 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15611107
TITLE: Metabolic stability of alpha-methylated polyamine derivatives and their use as substitutes for the natural polyamines.
AUTHOR: Jarvinen Aki; Grigorenko Nikolay; Khomutov Alex R; Hyvonen Mervi T; Uimari Anne; Vepsalainen Jouko; Sinervirta Riitta; Keinanen Tuomo A; Vujcic Slavoljub; Alhonen Leena; Porter Carl W; Janne Juhani
CORPORATE SOURCE: A. I. Virtanen Institute for Molecular Sciences, University of Kuopio, P. O. Box 1627, FIN-70211 Kuopio, Finland.
SOURCE: Journal of biological chemistry, (2005 Feb 25) 280 (8) 6595-601. Electronic Publication: 2004-12-16. Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200504
ENTRY DATE: Entered STN: 20050223
Last Updated on STN: 20050409
Entered Medline: 20050408

AB Metabolically stable polyamine derivatives may serve as useful surrogates for the natural polyamines in studies aimed to elucidate the functions of individual polyamines. Here we studied the metabolic stability of alpha-methylspermidine, alpha-methylspermine, and bis-alpha-methylspermine, which all have been reported to fulfill many of the putative physiological functions of the natural polyamines. In vivo studies were performed with the transgenic rats overexpressing spermidine/spermine N(1)-acetyltransferase. alpha-Methylspermidine effectively accumulated in the liver and did not appear to undergo any further metabolism. On the other hand, alpha-methylspermine was readily converted to alpha-methylspermidine and spermidine; similarly, bis-alpha-methylspermine was converted to alpha-methylspermidine to some extent, both conversions being inhibited by the polyamine oxidase inhibitor N(1), N(2)-bis(2,3-butadienyl)-1,4-butanediamine. Furthermore, we used recombinant polyamine oxidase, spermidine/spermine N(1)-acetyltransferase, and the recently discovered spermine oxidase in the kinetic studies. In vitro studies confirmed that methylation did not protect spermine analogs from degradation, whereas the spermidine analog was stable. Both alpha-methylspermidine and bis-alpha-methylspermine overcame the proliferative block of early **liver regeneration** in transgenic rats and reversed the cytostasis **induced** by an inhibition of ornithine decarboxylase in cultured fetal fibroblasts.

L23 ANSWER 2 OF 13 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2005:384194 BIOSIS
DOCUMENT NUMBER: PREV200510159329
TITLE: L-arginine and polyamine administration protect beta-cells against alloxan diabetogenic effect in Sprague-Dawley rats.

AUTHOR(S): Mendez, D. [Reprint Author]; De Haro Hernandez, Robert
CORPORATE SOURCE: Mexican Inst Social Secur, Natl Med Ctr, Med Res Unit Metab Dis, POB A-047, Mexico City 06703, DF, Mexico
mendezf@servidor.unam.mx
SOURCE: Biomedicine & Pharmacotherapy, (JUL 2005) Vol. 59, No. 6, pp. 283-289.
CODEN: BIPHEX. ISSN: 0753-3322.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 21 Sep 2005
Last Updated on STN: 21 Sep 2005

AB In the searching for new substances with the capacity to protect P-cells from the toxic effects of alloxan, we evaluated the effect of L-arginine and the polyamines putrescine, spermidine and spermine in a murine experimental model of diabetes. Diabetes was induced by the i.p. injection of either 200 mg/kg (24-h experiments) or 120 mg/kg (12 days experiments) body weight. L-Arginine and polyamines were administered 10 min before or 10 min after alloxan administration, once its half-life had elapsed, respectively.In the 24-h study, serum glucose (199.8 +/- 27.6 mg/dl) and triglyceride (54.6 +/- 4.9 mg/dl) concentrations showed a protective effect of spermine, as these parameters were not too high (P <= 0.05), compared to the alloxan-treated group (415.4 +/- 47.8 and 90.2 +/- 11.6 mg/dl, respectively), and were closer to glucose (132.3 +/- 6.0 mg/dl) and similar to triglycerides (63.8 +/- 7.1 mg/dl) of the control group.A similar pattern was observed on the parameters measured when L-arginine and polyamines were administered daily for 12 days, starting 10 min after a single alloxan administration, which provides evidence that L-arginine and polyamines are effective in impeding the increase in serum glucose, triglyceride and cholesterol concentration showed on day 3 by the alloxan-treated group, as well as a higher acinar cell regenerative capacity as determined by immunohistochemical techniques. Spermine turning out to be more effective than L-arginine, putrescine or spermidine in counteracting the marked hyperglycemia and triglyceridemia showed by the alloxan-treated group and similar in effect when evaluating cholesterolemia.These results show a clear protective role Of L-arginine and polyamines over the pancreatic beta-cell, in addition to the induction of neogenesis from both ductal and acinar cells that leads to the recovery of endocrine pancreatic function in rats with experimental diabetes. (c) 2005 Elsevier SAS. All rights reserved.

D2

L23 ANSWER 3 OF 13 MEDLINE on STN DUPLICATE 1
ACCESSION NUMBER: 2002633292 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12181316
TITLE: A polyamine analogue **prevents** acute **pancreatitis** and restores early liver regeneration in transgenic rats with activated polyamine catabolism.
AUTHOR: Rasanen Tiina-Liisa; Alhonen Leena; Sinervirta Riitta; Keinanen Tuomo; Herzig Karl-Heinz; Suppola Suvikki; Khomutov Alex R; Vepsalainen Jouko; Janne Juhani
CORPORATE SOURCE: A.I. Virtanen Institute for Molecular Sciences and the Department of Chemistry, University of Kuopio, P.O. Box 1627, FIN-70211 Kuopio, Finland.
SOURCE: Journal of biological chemistry, (2002 Oct 18) 277 (42) 39867-72. Electronic Publication: 2002-08-13.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States

Searcher : Shears 571-272-2528

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200212
ENTRY DATE: Entered STN: 20021024
Last Updated on STN: 20030105
Entered Medline: 20021219

AB We recently generated a transgenic rat model for acute pancreatitis, which was apparently caused by a massive depletion of pancreatic polyamines spermidine and spermine due to inducible activation of their catabolism (Alhonen, L., Parkkinen, J. J., Keinanen, T., Sinervirta, R., Herzig, K. H., and Janne, J. (2000) Proc. Natl. Acad. Sci. U. S. A. 97, 8290-8295). When subjected to partial hepatectomy, these animals showed striking activation of polyamine catabolism at 24 h postoperatively with a profound decrease in hepatic spermidine and spermine pools and failure to initiate liver regeneration. Here we show that pancreatitis in this model could be totally prevented, as judged by histopathology and plasma alpha-amylase activity, by administration of 1-methylspermidine, a metabolically stable analogue of spermidine. Similarly, the analogue, given prior to partial hepatectomy, restored early liver regeneration in the transgenic rats, as indicated by a dramatic increase in the number of proliferating cell nuclear antigen-positive hepatocytes from about 1% to more than 40% in response to the drug. The present results suggest that the extremely high concentration of spermidine in the pancreas, in fact the highest in the mammalian body, may have a critical role in maintaining organ integrity. The failure to initiate liver regeneration in the absence of sufficient hepatic polyamine pools similarly indicates that polyamines are required for proper commencement of the regenerative process.

L23 ANSWER 4 OF 13 EMBASE
ACCESSION NUMBER: 1999396291 EMBASE
TITLE: Effects of acute ethanol exposure on polyamine and gamma-aminobutyric acid metabolism in the regenerating liver.
AUTHOR: Lou G.; Zhang M.; Minuk G.Y.
CORPORATE SOURCE: Dr. G.Y. Minuk, Liver Diseases Unit, Health Sciences Center, 820 Sherbrook Street, Winnipeg, Man. R3A 1R9, Canada. gminuk@cc.umanitoba.ca
SOURCE: Alcohol, (1999) Vol. 19, No. 3, pp. 219-227.
Refs: 34
ISSN: 0741-8329 CODEN: ALCOEX
PUBLISHER IDENT.: S 0741-8329(99)00050-6
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
037 Drug Literature Index
040 Drug Dependence, Alcohol Abuse and Alcoholism
048 Gastroenterology
052 Toxicology
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 19991202
Last Updated on STN: 19991202

AB Recently, it has been suggested that ethanol-**induced** inhibition of **liver regeneration** results from decreases in **hepatic** putrescine levels and/or increases in

hepatic gamma-aminobutyric acid (GABA)ergic activity. Because putrescine can be metabolized by diamine (DAO) and monoamine (MAO) oxidases to GABA, we documented the effects of acute ethanol exposure on hepatic MAO or DAO activity following partial hepatectomy (PHx) in rats. We also documented the effects of ethanol on GABA transaminase (GABA-T), the enzyme responsible for GABA metabolism in the liver, and tissue putrescine and GABA levels. Adult, male Sprague-Dawley rats (200-250 g) were treated with either ethanol (3 g/kg) or equal volumes of saline by gastric gavage 1 h prior to a 70% PHx or sham surgery. Rats were then sacrificed (n = 5-7/group) at various times (0-72 h) post-PHx. Enzymatic activity and putrescine/GABA levels were determined by standard isotopic techniques and high-performance liquid chromatography respectively. Hepatic DAO activities in ethanol-treated rats were transiently higher than in saline-treated controls (30% increases at 6 h, $p < 0.05$). Hepatic MAO and GABA-T activities in acute ethanol-treated rats were essentially identical to saline-treated controls. Although hepatic putrescine levels were similar in ethanol- and saline-treated rats, hepatic GABA levels were approximately three times higher in ethanol-treated rats at 12 and 24 h post-PHx ($p < 0.0001$). In conclusion, the results of this study indicate that acute ethanol exposure has a limited effect on the enzymatic conversion of putrescine to GABA following partial hepatectomy in the liver. The results also indicate that increased GABAergic inhibition rather than decreased putrescine stimulation is more likely to play a role in ethanol-**induced** inhibition of **hepatic regeneration**.

L23 ANSWER 5 OF 13 EMBASE

ACCESSION NUMBER: 1998250658 EMBASE
TITLE: Effect of glucagon and insulin administration on the inhibition of rat liver regeneration by acute ethanol treatment after partial hepatectomy.
AUTHOR: Imano M.
CORPORATE SOURCE: M. Imano, Department of Public Health, Osaka City University Medical School, 1-4-54 Asahi-machi, Abenoku, Osaha 545-0051, Japan
SOURCE: Japanese Journal of Alcohol Studies and Drug Dependence, (1998) Vol. 33, No. 3, pp. 241-251.
Refs: 37
ISSN: 1341-8963 CODEN: AKYIDF
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 037 Drug Literature Index
040 Drug Dependence, Alcohol Abuse and Alcoholism
048 Gastroenterology
LANGUAGE: Japanese
SUMMARY LANGUAGE: English; Japanese
ENTRY DATE: Entered STN: 19980814
Last Updated on STN: 19980814

AB We studied the effects of glucagon and insulin (GI) administration on the inhibition of liver regeneration by acute ethanol treatment after partial hepatectomy (PH) in rats. When ethanol was given 1 hour before PH at 3 gm/kg body weight, [3H] thymidine incorporation into the hepatic DNA 24 hr after PH was significantly inhibited; but it was completely reversed by GI treatment. Although hepatic ornithine decarboxylase (ODC) activity in the ethanol- treated group 4 hr after PH was significantly inhibited, it was completely reversed by GI

treatment. The putrescine (PUT) level in the liver 4hr after PH was decreased by ethanol, but it was increased by GI treatment. At 12hr after PH, ODC activity was not inhibited and PUT level in the liver was not decreased by ethanol. The levels of spermidine and spermine in the liver 4hr after PH were unaffected either by ethanol or by GI treatment. Spermidine/spermine-N1 acetyltransferase activity in the liver 4hr after PH was showed a tendency to increase by ethanol but it was decreased by GI treatment. Difluoromethylornithine, a specific inhibitor of ODC, decreased the level of PUT in the liver, and inhibited [3H] thymidine incorporation. The intraperitoneal administration of PUT significantly increased [3H] thymidine incorporation. The increase in ODC mRNA caused by pH was inhibited by ethanol, but it was completely reversed by GI treatment. SAT mRNA was affected neither by ethanol ner GI treatment. These results suggested that GI treatment was effective on the inhibition of **liver regeneration** by acute ethanol treatment, and activation of **liver regeneration** by GI treatment is closely related with ODC **induction** at the level of transcription.

L23 ANSWER 6 OF 13 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 1994:539883 BIOSIS
DOCUMENT NUMBER: PREV199497552883
TITLE: Inhibition of hepatic regeneration by long-term feeding of ethanol to rats.
AUTHOR(S): Kurai, Keiko
CORPORATE SOURCE: Dep. Public Health, Osaka City Univ. Med. Sch., Japan
SOURCE: Journal of the Osaka City Medical Center, (1994) Vol. 42, No. 3, pp. 231-250.
CODEN: OIGZDE. ISSN: 0386-4103.
DOCUMENT TYPE: Article
LANGUAGE: Japanese
ENTRY DATE: Entered STN: 15 Dec 1994
Last Updated on STN: 5 Jun 1995

AB Liver regeneration is important for recovery from liver injury, and the antiregenerative effects of long-term and continued ethanol consumption may contribute to the pathogenesis and progress of liver injury in alcoholic subjects. To find whether the antiregenerative effects of ethanol involved changes in polyamine metabolism, indices of polyamine metabolism and DNA synthesis were compared before anti during surgically **induced liver regeneration** in rats fed ethanol. The rats received a nutritionally adequate liquid diet for six weeks, but 36% of the caloric content arose from ethanol. Their pair-fed controls received a liquid diet in which ethanol was replaced by other carbohydrates. Long-term ethanol consumption by the alcohol group resulted in fatty infiltration of the liver. After 16 hour of starvation, partial hepatectomy (70%) was performed with the rats under light ether anesthesia. Ethanol significantly inhibited (3H) thymidine incorporation into liver DNA 24 and 48 h after the operation, and markedly decreased the number of cells labeled with 5-bromo-2'-deoxyuridine 21 h after the operation. Spermidine and spermine levels in the liver were decreased in rats fed ethanol before and after the partial hepatectomy compared with the controls. There was little difference between the hepatic putrescine levels of rats fed ethanol and the control rats. No effects of alcohol were observed for ornithine decarboxylase or spermidine acetyltransferase activity, but the S-adenosyl-L-methionine decarboxylase activity of the liver in the rats fed ethanol before the operation was higher than that in the

control rats. Spermidine injected ip immediately after partial hepatectomy increased the spermidine concentrations of the liver and partially increased DNA synthesis in the rats fed ethanol. These results suggest that altered polyamine metabolism, especially depletion of spermidine and spermine concentrations, contributes to the inhibition of liver regeneration that occurs after long-term ethanol intake.

L23 ANSWER 7 OF 13 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN DUPLICATE 2

ACCESSION NUMBER: 1990:161440 BIOSIS
DOCUMENT NUMBER: PREV199089088858; BA89:88858
TITLE: EFFECT OF ETHANOL ON POLYAMINE SYNTHESIS DURING LIVER REGENERATION IN RATS.
AUTHOR(S): DIEHL A M [Reprint author]; WELLS M; BROWN N D; THORGEIRSSON S S; STEER C J
CORPORATE SOURCE: GASTROENTEROL DIV-151W, VETERANS ADM MED CENT, 50 IRVING ST NW, WASHINGTON, DC 20422, USA
SOURCE: Journal of Clinical Investigation, (1990) Vol. 85, No. 2, pp. 385-390.
CODEN: JCINAO. ISSN: 0021-9738.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 27 Mar 1990
Last Updated on STN: 28 Mar 1990

AB Ethanol consumption retards the hepatic regenerative response to injury. This may contribute to the pathogenesis of liver injury in alcoholic individuals. The mechanisms responsible for ethanol-associated inhibition of liver regeneration are poorly understood. To determine if the antiregenerative effects of ethanol involve modulation of polyamine metabolism, parameters of polyamine synthesis were compared before and during surgically **induced liver regeneration** in ethanol-fed rats and isocalorically maintained controls. After partial hepatectomy, induction of the activity of ornithine decarboxylase (ODC), the rate limiting enzyme for polyamine synthesis, was delayed in rats that had been fed ethanol. This was correlated with reduced levels of putrescine, ODC's immediate product. Increases in hepatic spermidine and spermine were also inhibited. Differences in ODC activity between ethanol-fed and control rats could not be explained by differences in the expression of ODC mRNA or by differences in ODC apoenzyme concentrations, suggesting that chronic ethanol intake inactivates ODC posttranslationally. Supplemental putrescine, administered at partial hepatectomy and 4 and 8 h thereafter, increased hepatic putrescine concentrations and markedly improved DNA synthesis and liver regeneration in ethanol-fed rats. These data suggest that altered polyamine metabolism may contribute to the inhibition of liver regeneration that occurs after chronic exposure to ethanol.

L23 ANSWER 8 OF 13 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 1986:298490 BIOSIS
DOCUMENT NUMBER: PREV198682032396; BA82:32396
TITLE: EFFECT OF PORTAL BRANCH LIGATION ON POLYAMINE METABOLISM IN RAT LIVER.
AUTHOR(S): KUBO S [Reprint author]; MATSUI-YUASA I; OTANI S; MORISAWA S; KINOSHITA H; SAKAI K
CORPORATE SOURCE: DEP BIOCHEMISTRY, OSAKA CITY UNIV MED SCH, ASAHI-MACHI,

ABENO-KU, OSAKA 545, JAPAN
SOURCE: Life Sciences, (1986) Vol. 38, No. 20, pp. 1835-1840.
CODEN: LIFSAK. ISSN: 0024-3205.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 25 Jul 1986
Last Updated on STN: 25 Jul 1986

AB The activity of ornithine decarboxylate and the intracellular concentrations of putrescine and spermidine in the non-ligated lobes of the liver increased after portal branch ligation. These changes were followed by increased [3H]thymidine uptake into the acid-insoluble fraction of the liver. The **induction** of ornithien decarboxylase and changes in intracellular polyamines are important biochemical events in **liver regeneration**, so our results suggest that portal branch ligation causes formation of some stimuli that trigger **liver regeneration**. Changes were less with ligation than with partial hepatectomy.

L23 ANSWER 9 OF 13 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1985:252504 BIOSIS
DOCUMENT NUMBER: PREV198579032500; BA79:32500
TITLE: CHANGES IN POLYAMINE LEVELS IN LIVER TISSUE AND URINE DURING RAT LIVER CARCINOGENESIS INDUCED BY 3' METHYL-4-DIMETHYLAMINOAZOBENZENE.
AUTHOR(S): KUROKAWA Y [Reprint author]
CORPORATE SOURCE: FIRST DEP SURGERY, NAGOYA UNIV SCH MED, JPN
SOURCE: Journal of the Nagoya Medical Association, (1984) Vol. 106, No. 3, pp. 189-196.
CODEN: NAIGAX. ISSN: 0387-1134.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: JAPANESE

AB The concentrations of polyamines in liver tissue and urine were measured to investigate the role of polyamines as a diagnostic marker of human tumors (malignancies) during the process of liver carcinogenesis in rats administered with 3'-Me-DAB [3'-methyl-4-dimethylaminoazobenzine]. Fifteen days after the administration of 3'-Me-DAB, significant changes were observed in the levels of putrescine (.apprx. 2.4 times), spermine (0.54 times) and the ratio of spermidine/spermine (twice), respectively, compared with the control group. After 90-105 days of the 3'-Me-DAB administration and at the same time as the development of tumor, the levels of putrescine and total polyamines in the urine began to show significant increases compared with the control group, and then gradually increased with the growth of tumor. Evidently, the early changes in polyamines (putrescine and spermine) and in the ratio of spermidine/spermine in liver tissue are **induced** by **liver** cell **regeneration** after **liver** cell necrosis due to 3'-Me-DAB administration and the later changes result from the formation of tumors. The concentrations of putrescine and total polyamines in urine can pay an important role as markers in diagnosis of cancer and its development.

L23 ANSWER 10 OF 13 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1982:307448 BIOSIS
DOCUMENT NUMBER: PREV198274079928; BA74:79928

TITLE: BIOCHEMICAL STUDIES ON LIVER INJURY AND REGENERATION FOLLOWING CARBON TETRA CHLORIDE ADMINISTRATION TO RATS.
AUTHOR(S): KOBAYASHI Y [Reprint author]
CORPORATE SOURCE: THE THIRD DEP OF INTERNAL MED, OSAKA CITY UNIV MED SCH, OSAKA
SOURCE: Journal of the Osaka City Medical Center, (1981) Vol. 30, No. 2, pp. 287-304.
CODEN: OIGZDE. ISSN: 0386-4103.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: JAPANESE

AB The biochemical events in liver injury and regeneration, changes in polyamine metabolism and DNA biosynthesis in the rat liver after i.p. administration of CCL4 were studied. When the extent of liver injury was estimated by measuring the serum level of GOT [aspartate transaminase] and GPT [alanine transaminase], these levels increased gradually after the injection of CCl4 and reached a maximum 12-24 h later. DNA synthesis in the liver reached a maximum 3 days after CCl4 injection. The level of polyamines (putrescine, spermidine and spermine) in the liver changed significantly and ornithine decarboxylase (ODC), a rate-limiting enzyme of polyamine synthesis reached a maximum 12 h after CCl4 injection. The extent of ODC induction and DNA synthesis varied with dose, interval and frequency of CCl4 administration. The minimal induction of ODC was seen when CCl4 (50 μl/100 g body wt) was injected twice/wk at intervals < 3 days. The substantial **regenerating** capacity of the **liver** cells was apparent in cases of chronic liver injury **induced** by injection of small doses of CCl4. The induction of ODC and DNA synthesis were correlatively enhanced when a small amount of CCl4 (30 μl/100 g body at) was injected twice/wk for 5 wk. This was not the case when a larger amount was administered for a long period or when a small amount of CCl4 was injected > 5 wk when ODC induction and DNA synthesis were markedly decreased.

L23 ANSWER 11 OF 13 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1981:176487 BIOSIS
DOCUMENT NUMBER: PREV198171046479; BA71:46479
TITLE: PROLONGED ORNITHINE DECARBOXYLASE **INDUCTION** IN **REGENERATING** CARCINOGEN TREATED **LIVER**.
AUTHOR(S): OLSON J W [Reprint author]; RUSSELL D H
CORPORATE SOURCE: DEP PHARMACOL, UNIV ARIZ HEALTH SCI CENT, TUCSON, ARIZ 85724, USA
SOURCE: Cancer Research, (1980) Vol. 40, No. 12, pp. 4373-4380.
CODEN: CNREA8. ISSN: 0008-5472.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH

AB A cascade of events leading to hypertrophy was proposed and implicated in growth regulation in a variety of normal and neoplastic cells and tissues. There is a tightly coupled temporal sequence: AMP-dependent protein kinase (cAPK) activation; ornithine decarboxylase (ODC) induction; and the accumulation of spermidine, resulting in an increased spermidine/spermine ratio. The specific activation of type I cAPK was implicated to ODC induction, and the amounts of type I and type II cAPK alter as a function of growth and transformation. The alterations in these biochemical parameters and that of γ-glutamyltranspeptidase was studied in a rapid multistep

hepatocarcinogenesis system [in rats]. A marked and prolonged increase in the cAPK ratio was followed by a similar pattern of ODC induction after a single carcinogenic dose of diethylnitrosamine and again in response to partial hepatectomy. Liver foci were detectable within 4 days of partial hepatectomy in animals that received the entire carcinogen regimen, and the foci contained significant and increasing amounts of γ-glutamyltranspeptidase activity. The increase in ODC activity was followed closely by an increased spermidine/spermine ratio. Total type I activity in the cytosol decreased most dramatically at the time of foci formation, suggestive of selective activation and turnover. The prolonged activation of cAPK and elevation of ODC may be necessary for hepatocarcinogenesis.

L23 ANSWER 12 OF 13 EMBASE

ACCESSION NUMBER: 78307513 EMBASE
DOCUMENT NUMBER: 1978307513
TITLE: Polyamines in rapid growth and cancer.
AUTHOR: Janne J.; Poso H.; Raina A.
CORPORATE SOURCE: Dept. Biochem., Univ. Helsinki, Finland
SOURCE: Biochimica et Biophysica Acta, (1978) Vol. 473, No. 3-4, pp. 241-293.
CODEN: BBACAQ
COUNTRY: Netherlands
DOCUMENT TYPE: Journal
FILE SEGMENT: 037 Drug Literature Index
029 Clinical Biochemistry
030 Pharmacology
016 Cancer
005 General Pathology and Pathological Anatomy
LANGUAGE: English

AB The aliphatic polyamines, putrescine, spermidine and spermine are natural constituents of most living organisms. Although the discovery of spermine by Leeuwenhoek extends back to 1677, a more systematic research has been focused on these natural bases only during the last 2 decades. This review article begins with Chapter I: Introduction, discussing (A) Biosynthesis; (B) Degradation of polyamines; and (C) relation of the biological effects of polyamines to their postulated physiological functions. Chapter II: Polyamines in rapidly growing animal tissues, deals with (A) Polyamines during developmental growth; (B) Polyamines during compensatory growth (**Regenerating** rat **liver** in response to tissue loss and to chemical injury, Kidney and Cardiac hypertrophy); Polyamines and the action of growth-promoting hormones (Growth hormone, Androgen-**induced** growth, Estrogens and gonadotrophins, Corticosteroids, Other Hormones, and Mechanism of hormonal stimulation); (D) Relation of polyamine synthesis and accumulation to cell cycle and proliferative activity. Chapter III: Polyamines in experimental tumors of animals, deals with (A) Polyamine synthesis and accumulation during neoplastic growth (Polyamine metabolism in Ehrlich ascites carcinoma cells, Formation of polyamines in transplantable hepatomas of different growth rates, Polyamines in tumors of neural origin, Miscellaneous animal tumors, Changes in polyamine metabolism during chemical carcinogenesis, Changes of polyamine metabolism in animal tissues caused by tumor burden, and Effect of cytostatic therapy on tumor and extracellular polyamines); (B) Polyamines and viral transformation. Chapter IV: Role of polyamines in cell proliferation, deals with Specific inhibition of polyamine synthesis and its metabolic consequences (L-Ethionine, α-Hydrazinoornithine and DL-α-hydrazino-

δ-aminovaleric acid, α-Methylornithine, unsaturated analogues of ornithine and putrescine, Diamino-butanone, Methylglyoxal bis(guanylhydrazone), Compounds interacting directly with ornithine decarboxylase, Compounds decreasing the amount of active ornithine decarboxylase, and Inhibitors of spermidine and spermine synthases). Chapter V: Polyamines and clinical cancer, deals with (A) Polyamine content of human tissues and extracellular fluids (Development of analytical methods, and Polyamines in human tissues and physiological fluids); (B) Polyamines in physiological fluids in malignant and nonmalignant diseases (Polyamines in physiological fluids in various types of cancer: Tumors of central nervous system, Hematological tumors and lymphomas, Malignant melanoma, Lung cancer, gastrointestinal tumors, Urogenital tumors, Breast cancer; Polyamines in physiological fluids in diseases other than cancer; Usefulness of polyamine determinations as diagnostic means in cancer; Use of polyamine determination for short-term evaluation of the efficacy of therapy; Use of polyamine determinations for prognostic purposes; Other biochemical markers of malignancy related to polyamines). In their concluding remarks the authors discuss future trends in polyamine research along 3 lines: (1) the 'academic' interest in developing useful models for a better understanding of the control of specific enzyme synthesis in eukaryotes by study of the molecular mechanisms involved in the regulation of polyamine biosynthesis in animal tissues, the practical interest in developing (2) the ideal inhibitor of polyamine biosynthesis as a result of the essential role which the natural amines play in cellular metabolism and in cell proliferation in particular and (3) a polyamine assay as a marker of human malignancies.

L23 ANSWER 13 OF 13 MEDLINE on STN DUPLICATE 3
ACCESSION NUMBER: 76213332 MEDLINE
DOCUMENT NUMBER: PubMed ID: 180026
TITLE: Stimulation of ornithine decarboxylase synthesis and its control by polyamines in regenerating rat liver and cultured rat hepatoma cells.
AUTHOR: Canellakis Z N; Theoharides T C
SOURCE: Journal of biological chemistry, (1976 Jul 25) 251 (14) 4436-41.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197609
ENTRY DATE: Entered STN: 19900313
Last Updated on STN: 19970203
Entered Medline: 19760902

AB Ornithine decarboxylase has been induced in log phase hepatoma cells grown in suspension culture. Induction with N6, O2'-dibutyryl cyclic adenosine 3':5'-monophosphate produced a 4-fold increase in enzyme activity by 3 hours which was followed by a return to base levels by 6 hours. Induction with dexamethasone, a potent synthetic glucocorticoid, exhibited a slow steady rate of increase in enzyme activity, reaching a plateau level of approximately 5- to 6-fold stimulation by about 12 hours. **Induced** cell and **regenerating** rat **liver** ornithine decarboxylase were shown to be indistinguishable by titration with antibody monospecific to the latter and by heat stability. L-[14C]Leucine incorporation into immunoprecipitable enzyme protein after induction in vitro or

partial hepatectomy showed an increase which, when coupled with the increase in enzymatic activity, indicated de novo synthesis of enzyme protein. Physiological concentrations of the naturally occurring polyamines, spermidine and spermine, abolish cyclic AMP induction whereas they have no effect on dexamethasone induction. Both inductions were abolished by cycloheximide; in contrast, inhibition by actinomycin D was complete for dexamethasone induction and only partial with respect to cyclic AMP induction. The different time pattern of induction seen with cyclic AMP and dexamethasone, the partial inhibition of the cyclic AMP induction seen with actinomycin D, as well as the absence of inhibition of the dexamethasone induction by polyamines, indicate that these inducers might affect different aspects of the control of the same enzyme.

FILE 'HOME' ENTERED AT 15:21:45 ON 29 NOV 2005

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L1                STR

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REP G1=(2-6) C
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NODE ATTRIBUTES:
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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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NUMBER OF NODES IS   8

STEREO ATTRIBUTES: NONE
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L3                STR

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REP G1=(2-6) C
VAR G2=H/8
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GGCAT   IS LOC  AT   8
GGCAT   IS LOC  AT   9
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   9

STEREO ATTRIBUTES: NONE
L4                STR

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    ~        ~
Ak~ N~~ G1~ N~ G1~ N~ G2
 9   1   2   3   4   5   6

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VAR G2=H/8
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GGCAT   IS LOC  AT   8
GGCAT   IS LOC  AT   9
GGCAT   IS LOC  AT  10
DEFAULT ECLEVEL IS LIMITED
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GRAPH ATTRIBUTES:
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NUMBER OF NODES IS  10

STEREO ATTRIBUTES: NONE
L5       143361 SEA FILE=REGISTRY SSS FUL (L1 OR L3 OR L4) NOT L2
L6       130595 SEA FILE=REGISTRY ABB=ON  PLU=ON  L5 AND 1/NC
L7         2073 SEA FILE=REGISTRY ABB=ON  PLU=ON  L6 AND O=0


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L2              SCR 1838
L3              STR
L4              STR
L5       143361 SEA SSS FUL (L1 OR L3 OR L4) NOT L2
              ---------
L6       130595 SEA ABB=ON  PLU=ON  L5 AND 1/NC
L7         2073 SEA ABB=ON  PLU=ON  L6 AND O=0

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     FILE 'CAPLUS' ENTERED AT 15:11:39 ON 29 NOV 2005
L8         31426 SEA ABB=ON  PLU=ON  L7
L9            63 SEA ABB=ON  PLU=ON  L8(L)((LIVER OR HEPATIC)(5A)(GENERAT?
                 OR REGENERAT?) OR (PANCREATIT? OR (PANCREAS OR PANCREAT?)(3
                 A)(DISEAS? OR DISORDER))(5A)(TREAT? OR THERAP? OR PREVENT?)
                 )
L10           59 SEA ABB=ON  PLU=ON  L9 NOT (PY=>2002 OR PD=>20021209)
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                 SEL HIT L10 1-59 RN
                 D 1-59 IBIB ABS HITSTR

     FILE 'REGISTRY' ENTERED AT 15:15:00 ON 29 NOV 2005
L11            2 SEA ABB=ON  PLU=ON  (124-20-9/BI OR 71-44-3/BI)
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     FILE 'CAOLD' ENTERED AT 15:15:18 ON 29 NOV 2005
L12          141 SEA ABB=ON  PLU=ON  L11
L*** DEL     141 S L12 NOT (PY=>2002 OR PD=>20021209)

     FILE 'USPATFULL' ENTERED AT 15:16:06 ON 29 NOV 2005
L13          516 SEA ABB=ON  PLU=ON  L11
L14            0 SEA ABB=ON  PLU=ON  L13(L)((LIVER OR HEPATIC)(5A)(GENERAT?
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                 A)(DISEAS? OR DISORDER))(5A)(TREAT? OR THERAP? OR PREVENT?)
                 )
L15            4 SEA ABB=ON  PLU=ON  L13 AND ((LIVER OR HEPATIC)(5A)(GENERAT
                 ? OR REGENERAT?) OR (PANCREATIT? OR (PANCREAS OR PANCREAT?)
                 (3A)(DISEAS? OR DISORDER))(5A)(TREAT? OR THERAP? OR
                 PREVENT?))
                 D 1-4 IBIB ABS

     FILE 'MEDLINE, BIOSIS, EMBASE' ENTERED AT 15:17:04 ON 29 NOV 2005
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L17           0 SEA ABB=ON  PLU=ON  L16(L)((LIVER OR HEPATIC)(5A)(GENERAT?
                OR REGENERAT?) OR (PANCREATIT? OR (PANCREAS OR PANCREAT?)(3
                A)(DISEAS? OR DISORDER))(5A)(TREAT? OR THERAP? OR PREVENT?)
                )
L18         211 SEA ABB=ON  PLU=ON  L16 AND ((LIVER OR HEPATIC)(5A)(GENERAT
                ? OR REGENERAT?) OR (PANCREATIT? OR (PANCREAS OR PANCREAT?)
                (3A)(DISEAS? OR DISORDER))(5A)(TREAT? OR THERAP? OR
                PREVENT?))
L19          51 SEA ABB=ON  PLU=ON  L18 AND ADMIN?
L20          35 DUP REM L19 (16 DUPLICATES REMOVED)
                D KWIC
                D KWIC 3-4
L21          32 SEA ABB=ON  PLU=ON  L20 NOT (PY=>2002 OR PD=>20021209)
                D KWIC
L22          17 SEA ABB=ON  PLU=ON  L16 AND (((LIVER OR HEPATIC)(5A)(GENERA
                T? OR REGENERAT?))(S)(INDUCT? OR INDUCING OR INDUCE#) OR
                (PANCREATIT? OR (PANCREAS OR PANCREAT?)(3A)(DISEAS? OR
                DISORDER))(5A)(TREAT? OR THERAP? OR PREVENT?))
L23          13 DUP REM L22 (4 DUPLICATES REMOVED)
                D 1-13 IBIB ABS

FILE 'HOME' ENTERED AT 15:21:45 ON 29 NOV 2005
                D QUE STAT L7


FILE REGISTRY
Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:   28 NOV 2005  HIGHEST RN 868827-82-1
DICTIONARY FILE UPDATES:  28 NOV 2005  HIGHEST RN 868827-82-1

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

*****************************************************************
*                                                               *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,   *
* effective March 20, 2005.  A new display format, IDERL, is now    *
* available and contains the CA role and document type information. *
*                                                               *
*****************************************************************

Structure search iteration limits have been increased.  See HELP SLIMI
for details.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html
```

FILE CAPLUS

FILE COVERS 1907 - 29 Nov 2005 VOL 143 ISS 23
FILE LAST UPDATED: 28 Nov 2005 (20051128/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply They are available for your review at:

http://www.cas.org/infopolicy.html

FILE CAOLD
FILE COVERS 1907-1966
FILE LAST UPDATED: 01 May 1997 (19970501/UP)

This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file supports REGlstRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

FILE USPATFULL
FILE COVERS 1971 TO PATENT PUBLICATION DATE: 29 Nov 2005 (20051129/PD)
FILE LAST UPDATED: 29 Nov 2005 (20051129/ED)
HIGHEST GRANTED PATENT NUMBER: US6971121
HIGHEST APPLICATION PUBLICATION NUMBER: US2005262612
CA INDEXING IS CURRENT THROUGH 29 Nov 2005 (20051129/UPCA)
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 29 Nov 2005 (20051129/PD)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Oct 2005
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Oct 2005

>>> USPAT2 is now available. USPATFULL contains full text of the
>>> original, i.e., the earliest published granted patents or
>>> applications. USPAT2 contains full text of the latest US
>>> publications, starting in 2001, for the inventions covered in
>>> USPATFULL. A USPATFULL record contains not only the original
>>> published document but also a list of any subsequent
>>> publications. The publication number, patent kind code, and
>>> publication date for all the US publications for an invention
>>> are displayed in the PI (Patent Information) field of USPATFULL
>>> records and may be searched in standard search fields, e.g., /PN,
>>> /PK, etc.

Searcher : Shears 571-272-2528

>>> USPATFULL and USPAT2 can be accessed and searched together
>>> through the new cluster USPATALL. Type FILE USPATALL to
>>> enter this cluster.
>>>
>>> Use USPATALL when searching terms such as patent assignees,
>>> classifications, or claims, that may potentially change from
>>> the earliest to the latest publication.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE MEDLINE
FILE LAST UPDATED: 26 NOV 2005 (20051126/UP). FILE COVERS 1950 TO DA

On December 19, 2004, the 2005 MeSH terms were loaded.

The MEDLINE reload for 2005 is now available. For details enter HELP RLOAD at an arrow promt (=>). See also:

http://www.nlm.nih.gov/mesh/
http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html

OLDMEDLINE now back to 1950.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the MeSH 2005 vocabulary.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE BIOSIS
FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 23 November 2005 (20051123/ED)

FILE EMBASE
FILE COVERS 1974 TO 28 Nov 2005 (20051128/ED)

EMBASE has been reloaded. Enter HELP RLOAD for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE HOME